FALL SEASON PRELIMINARY FISHERY SUMMARY YUKON AREA, ALASKA, 2000

A Report to the Alaska Board of Fisheries

By:

Bonnie Borba
Kevin Boeck

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AUTHOR

Bonnie M. Borba is the Yukon Area Fall Season Research Biologist for the Alaska Department of Fish and Game, Division of Commercial Fisheries, 1300 College Road, Fairbanks, AK 99701.

Kevin Boeck is the Upper Yukon Fishery Monitor for the Alaska Department of Fish and Game, Division of Commercial Fisheries, 1300 College Road, Fairbanks, AK 99701.

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Introduction

This report provides a preliminary season summary for the 2000 Yukon Area fall chum and coho salmon fishing season. Assessment of the 2000 fall chum salmon run is ongoing at the time of this writing. Therefore all escapement information for 2000 is preliminary and subject to modifications. Subsistence harvest information will be unavailable until late spring. The 2000 preseason outlook was 512,000 to 1,100,000 fall chum salmon. The low end of the range was based on the poor production observed in recent years, and the upper boundary was based on the excellent parent year escapements in 1995 and 1996. These levels represent a range from extremely weak to extremely strong returns of fall chum salmon. The preseason commercial harvest outlook was expressed as a range from zero to 320,500 fall chum salmon in the Alaskan portion of the drainage. The coho salmon outlook was for a below average to an average return based on the fairly stable production of these stocks.

2000 Fall Chum Salmon Management Overview

Assessments of fall chum and coho salmon returns begin from the time the fish enter the lower Yukon River mouths until they reach spawning grounds within the Yukon River drainage in both Alaska and Canada. Fall chum salmon typically take 34 days to migrate as far as the U.S./Canada border. For management purposes the Yukon River is divided into fishery Districts/Subdistricts and drainages (Figure 1).

The 2000 Yukon River fall chum salmon run is managed according to guidelines established by the Alaska Board of Fisheries in 5 AAC 01.249. *Yukon River Drainage Fall Chum Salmon Management Plan* (Figure 3). The management plan provides for escapement needs and mandates subsistence use priority over commercial fishing activities. The management plan stipulates that directed fall chum salmon commercial fisheries be allowed only when the run size projection is greater than 675,000 fall chum salmon. At run sizes of less than 600,000 fall chum salmon, the drainage-wide escapement goal drops in increments from 400,000 to 350,000 fish. Provisions in the plan allow for varying levels of subsistence salmon fishing restrictions prior to closure of the fishery when necessary to meet minimum escapement requirements.

Since 1987, the Yukon River preseason fall chum salmon projection has been presented as a point estimate. However, because of the unexpected run failure observed in 1998, a high level of uncertainty was associated with the Yukon River fall chum salmon preseason run projection for 2000. Consequently, the 2000 Yukon River preseason projection was presented as a range of 512,000 to 1,100,000 fall chum salmon.

As a result of the wide range in the preseason projection, the department relied more heavily on inseason run assessment tools earlier in the run than usual, including information from the summer chum and chinook salmon runs earlier in the summer. Figure 3 shows the location of selected Yukon Area fall chum salmon monitoring projects and major spawning grounds. The department monitored the 2000 run in the lower Yukon

River by using the lower Yukon River set gillnet test fishery, Mountain Village drift gillnet test fishery (operated by Asacarsarmiut Traditional Council), Pilot Station sonar passage estimates and subsistence catch reports. Results from these projects, in combination with the preseason projection, were the basis for initial management decisions concerning the 2000 subsistence fishery.

The majority of fall chum salmon enter the Yukon River from mid-July through early September in erratic surges (pulses) usually lasting two to three days. Typically, four or five such pulses occur each season. These pulses are often associated with on-shore wind events or high tides. This characteristic entry pattern makes it difficult to accurately assess the run strength inseason, particularly early in the season.

The 2000 fall chum salmon run showed some strength in the earlier portion of the return but was followed by extremely weak pulses. As detected by the lower Yukon River set gillnet test fishery (Figure 5), salmon were migrating through the area on the date the gillnets were being switched from summer to fall season salmon gear. The first major pulse of fall chum salmon entered the Yukon River on July 24 and appeared to last six days. However, due to the extreme efficiency of the lower Yukon River set gillnet test fishery, similar to last season, the strength of the return was suspect at these sites and found to be over estimated relative to other projects. There is some indication that the primary test gillnet sites have drastically changed from previous years and/or the extremes in water levels in recent years are contributing to the effect. Following a lull of eleven days, extremely weak pulses with low numbers of fish passage continued after August 10. On average, approximately 62 percent of fall chum salmon enter the Yukon River by August 10. The first formal inseason projection used to determine if the level of subsistence fishing restrictions was adequate to provide for subsistence harvests and meet escapement was made August 12. Continued assessment based on average run timing information revealed that the 2000 fall chum salmon return was not large enough to support subsistence activities. Based on a projection of less than 350,000 fall chum salmon (Figure 6), the 2000 fall season subsistence salmon fishery was closed on August 23.

Assessment of the 2000 fall chum salmon escapement is ongoing at the time of this writing. Most Upper Yukon Area fall season monitoring projects operated until late September or early October, and some escapement projects continue into November. Due to closure of the subsistence fishery, the lower Yukon River set gillnet test fishery was discontinued for the season on August 21. The Pilot Station sonar project typically ends in late August, but in 2000 the project remained in operation until September 14. Pilot Station sonar estimated between 237,239 and 269,687 fall chum salmon passed the site, with a midpoint of 253,512 fish.

Pilot Station only provides an estimate of the number of salmon passing the site during its operational period. An estimate of the total Yukon River run size requires an estimate of the subsistence harvests below Pilot Station. Because the 2000 season began with subsistence restrictions in place, the level of harvest is estimated as less than average. The corresponding total run size estimate was applied to the fall chum salmon management plan to determine

appropriate management actions (Figure 3). Due to the very poor showing of fall chum salmon, the estimate of the subsistence harvest plus the passage estimate generated by Pilot Station sonar would not have reduced the level of restrictive management actions taken.

Assessment of the fall chum salmon run in the upper Yukon River began with the Kaltag drift test fishery program (operated by the city of Kaltag). The majority of the Upper Yukon Area projects confirmed a very weak and lower than expected return of fall chum salmon. The Rapids test fish wheels located in the canyon were the exception in that they exhibited extreme efficiency in catching fish due to the affects of high water during the entire fall season. However, the Rapids/Rampart fall chum salmon tagging study ended just after the average quarter point of the return, and only one population estimate was generated. Current end of season projections, based on population estimates for both Rapids/Rampart (expanded) and upper Tanana River tagging projects, suggest poor run sizes that are below the levels observed in 1998. The fall chum salmon abundance appeared better than anticipated at the Department of Fisheries and Oceans border tagging fish wheels. Larger abundance indications from the border tagging wheels are also believed to be due to high catch rates caused by the record high water levels experienced throughout the season.

Overall, the 2000 fall chum salmon run appears to have had strength in the early portion of the run with weakness throughout the remainder of the return. Due to the poor return of fall chum salmon to the Yukon and Tanana Rivers, the Personal Use fishery within the Fairbanks Nonsubsistence Area has been closed since July 14, 2000.

2000 Coho Salmon Management Overview

Yukon River coho salmon have a slightly later, but overlapping, run timing with that of the fall chum salmon run. In managing the coho salmon run, the department follows guidelines adopted in November 1998 by the Board of Fisheries in 5 AAC 05.369. *Yukon River Drainage Coho Salmon Management Plan*. The coho salmon management plan allows a directed coho salmon commercial fishery only under special and unique situations. It is very unlikely that conditions outlined in the coho salmon management plan will occur in a given year. In most years, fall chum salmon are the primary species of management concern during the fall season. In 2000, no directed commercial coho salmon fishing periods were allowed based on the weakness of the fall chum salmon.

Several strong pulses of coho salmon entered the Yukon River beginning August 10, as detected by the lower Yukon River set gillnet test fishery (Figure 12). Pilot Station sonar estimated a midpoint passage of 97,029 coho salmon by August 21, indicating that the 2000 coho salmon run was above average by this date. However, the strength of the run tapered off as the later portion of the return declined. The final passage estimate at Pilot Station sonar was 183,000 coho salmon, suggesting that the early strength in the coho salmon resulted in an average run size with slightly early run timing.

2000 Subsistence Season Summary

The majority of villages within the Yukon Area have no regulatory requirements to report their subsistence salmon harvest. To estimate the salmon harvest from these villages, the department has implemented a voluntary survey program. Household subsistence salmon surveys were conducted in the Lower Yukon Area in September and the Upper Yukon Area in October. The survey program utilizes subsistence catch calendars, postseason household interviews, and postseason household telephone interviews and postcards to collect harvest information. Currently, follow up surveys are being conducted and the collected data is being prepared for data compilation.

In some portions of the Yukon Area, subsistence fishermen are required to obtain an annual household permit prior to fishing. In 2000, these areas include the Tanana River drainage, the Yukon River drainage between Hess Creek and the Dall River, referred to as the Yukon River Bridge area, and the upper portion of District 5 between the upstream mouth of Twenty-Two Mile Slough and the U.S./Canada border. In these areas, fishermen are required to document their subsistence harvest on the household permit and return them to the department at the end of the fishing season. As of this update, a total of 421 subsistence permits were issued in 2000. The majority of subsistence fishing permits expired on October 15, 2000.

An estimate of the subsistence harvest based on surveys and permit harvest information is unavailable at this time. The first estimate of the 2000 Yukon Area subsistence harvest will be made in the spring of 2001.

2000 Personal Use Season Summary

A household permit is required for personal use fishing in portions of the Tanana River drainage within the Fairbanks Non-subsistence Area (Figure 2). Fishermen are required to document their personal use harvest on the household permits and return them to the department at the end of the season. The majority of personal use permits expired on October 15, 2000. As of this update, a total of 70 personal use permits were issued in 2000. However, to conserve fall chum salmon, the Tanana River personal use fishery was closed on July 14, 2000.

Subsistence Restrictions and Closure

In response to the low level of fall chum salmon returning in 2000, the Fall Chum Salmon Management Plan directed the department to maintain the commercial, sport, and personal use closures that were implemented during the summer season.

For the first time in history the entire Yukon River drainage began the fall fishing season under subsistence restrictions that were imposed due to the poor abundance of chinook and summer chum salmon. As of July 19, 2000 the subsistence restrictions were as

follows: Districts 1, 2, and 3 were reduced to one 12-hour period per week; District 4 was reduced to two 24-hour periods per week; and District 5 was reduced to one 24-hour and two 12-hour periods per week. Subdistricts 6-A and 6-B on the Tanana River and the Upper Tanana River drainage were reduced to one 24-hour period per week, and the "Old Minto Area" was reduced to one 40-hour period per week. Based on the extreme weakness in the summer season salmon returns, the fall chum salmon run was reevaluated and anticipated to be closer to the lower end of the preseason projection (530,000 fish). When applied to the management plan this level of return would not support normal subsistence harvests and meet escapement requirements. Therefore, the restrictions remained in place into the fall fishing season while the fall chum salmon run was being assessed.

Inseason assessments from the upper Yukon River projects included the first preliminary passage estimate generated from the Rapids/Rampart mark-recapture project of 47,000 fall chum salmon as of August 19 and an end of the season estimate of approximately 177,000 fall chum salmon. This estimate was consistent with the lower river run assessment.

The run continued to show weakness as the season progressed, leading to further restrictions to the subsistence fishery on August 12 as follows: Districts 1, 2, and 3 were reduced to one 6-hour period per week; Districts 4 and 5 were reduced to one 24-hour period per week. On the Tanana River, Subdistricts 6-A and 6-B were reduced to one 18-hour period per week, the "Old Minto Area" was reduced to one 24-hour period per week, while the upper Tanana River drainage was placed on 36 hours per week. These restrictions reflected an 80 percent reduction of opportunity in all areas except for the Lower Yukon Area.

Run size projections in late August did not improve as the run progressed. Despite the lack of commercial fishing, closures of both sport and personal use fisheries, and implementation of subsistence restrictions, it was determined that the 2000 fall chum salmon run would not support subsistence harvests. Subsistence fishing within the Yukon River drainage was closed on August 23 to enable remaining fall chum salmon to provide for spawning escapement needs.

The subsistence fishery for non-salmon species remained open seven days per week throughout the drainage using a variety of gear types. However gillnets were limited to 4 inches or less in stretch mesh and fish wheels were excluded. During the peak of the coho salmon return in District 4 and Subdistricts 5-A, 6-A and 6-B, areas where coho salmon are present in good numbers, subsistence fishing opportunity was provided where means existed to minimize the harvest of fall chum salmon. In these areas subsistence fishing was allowed by operation of fish wheels equipped with "live chutes" to harvest coho salmon. Additionally, sections of the Yukon River drainage are reopening to normal subsistence schedules after the majority of fall chum salmon have migrated through to spawning grounds. The Lower Yukon Area reopened September 16, District 4 reopened September 27, Subdistricts 5-B, 5-C and 5-D reopened October 1. Subdistricts 5-A, 6-A,

6-B and upper Tanana River are scheduled to reopen October 9 based on run timing of salmon passing through the area.

2000 Escapement

Major fall chum salmon spawning areas are located in the Chandalar River, Tanana River drainage, Porcupine River drainage and within the Canadian portion of the mainstem Yukon River drainage (Figures 8-10). Figures 9 and 10 and Table 1 present historic fall chum salmon escapement information along with the most current 2000 escapement results. Escapement monitoring projects in Canada and within the Tanana River drainage are ongoing at this time. It is anticipated that escapement goals will not be met in any of the major spawning areas being monitored. All 2000 escapement figures are considered preliminary at this time.

Assessment of coho salmon spawning escapement is very limited in the Yukon River drainage due to funding limitations and often marginal survey conditions that prevail during the periods of peak spawning. Presently, only one escapement goal has been established for coho salmon in the Yukon River drainage. The Delta Clearwater River in the Tanana River drainage has a minimum goal of 9,000 coho salmon, based upon a boat survey conducted during peak spawning. The peak Delta Clearwater River spawning ground count was 9,225 coho salmon and occurred on October 24, 2000 (Figure 14). Table 4 presents historic coho salmon escapement data information along with the most current 2000 escapement results to date.

U.S./Canada Yukon River Salmon Panel and Negotiations

Negotiations were initiated in 1985 between the U.S. and Canada regarding a Yukon River salmon treaty. The purpose of these negotiations is to develop between the U.S. and Canada the coordinated conservation and management of salmon stocks that spawn in the Yukon River drainage in Canada.

In the mid-1990s, there was realization that, while reaching a comprehensive long term agreement remained a formidable challenge given some of the key unresolved issues, there would be benefits that could be realized by more formally implementing the areas of agreement to date. In February 1995, an interim Yukon River Salmon Agreement (Agreement) went into effect. A U.S./Canada Yukon River Panel (Panel) was formed to implement the Agreement. The focus of the Panel was on the salmon stocks that spawn in the Canadian portion of the Yukon River drainage. The Panel made recommendations to the management agencies in Alaska and Canada. The Panel also administered a Yukon River Salmon Restoration and Enhancement Fund (Fund).

For Canadian Yukon River mainstem fall chum salmon, a 12-year rebuilding plan was agreed upon during the negotiation process beginning with the 1990 season. The objective of this plan is to rebuild the stock by achieving a spawning escapement of

80,000 or more fall chum salmon for all brood years in the four-year cycle by the year 2001. The U.S. contribution to this effort was to endeavor to deliver to the Canadian border on the mainstem Yukon River an agreed to number of fall chum salmon, which varies by year based upon the rebuilding schedule. The Canadian contribution to this effort was to endeavor to manage the harvest of fall chum salmon in the mainstem Yukon River drainage in Canada by all user groups combined within a guideline harvest range of 23,600 to 32,600 fall chum salmon.

A key component of the Agreement was administration of the Fund by the Panel to address the restoration and enhancement of Canadian spawned salmon stocks. The U.S. contributed $400,000 per year into the Fund. At its April 1996, March 1997 and March 1998 meetings, the Panel allocated monies from this special fund to restore and increase salmon production on the river. Applicants included regional organizations, Native groups, private consultants and others, primarily in Canada. In 1999, the monies from the Fund were allocated to projects in the Alaska portion of the drainage.

Initially the Agreement was in place through 1997, with an option to extend if both sides agreed. Negotiations resumed in October 1997 to reach a long-term agreement on the remaining issues and to incorporate the relevant elements of the Agreement. At the October negotiations, the Agreement was extended through March 31, 1998.

Although the U.S. side supported extending the Agreement, the Canadian side allowed the Agreement to expire at the March 1998 negotiations meeting. Since March 1998, the department has continued to endeavor to manage the salmon fisheries on the Yukon River consistent with the stock rebuilding and conservation plans for chinook and fall chum salmon that were contained in the interim agreement.

TABLES AND FIGURES

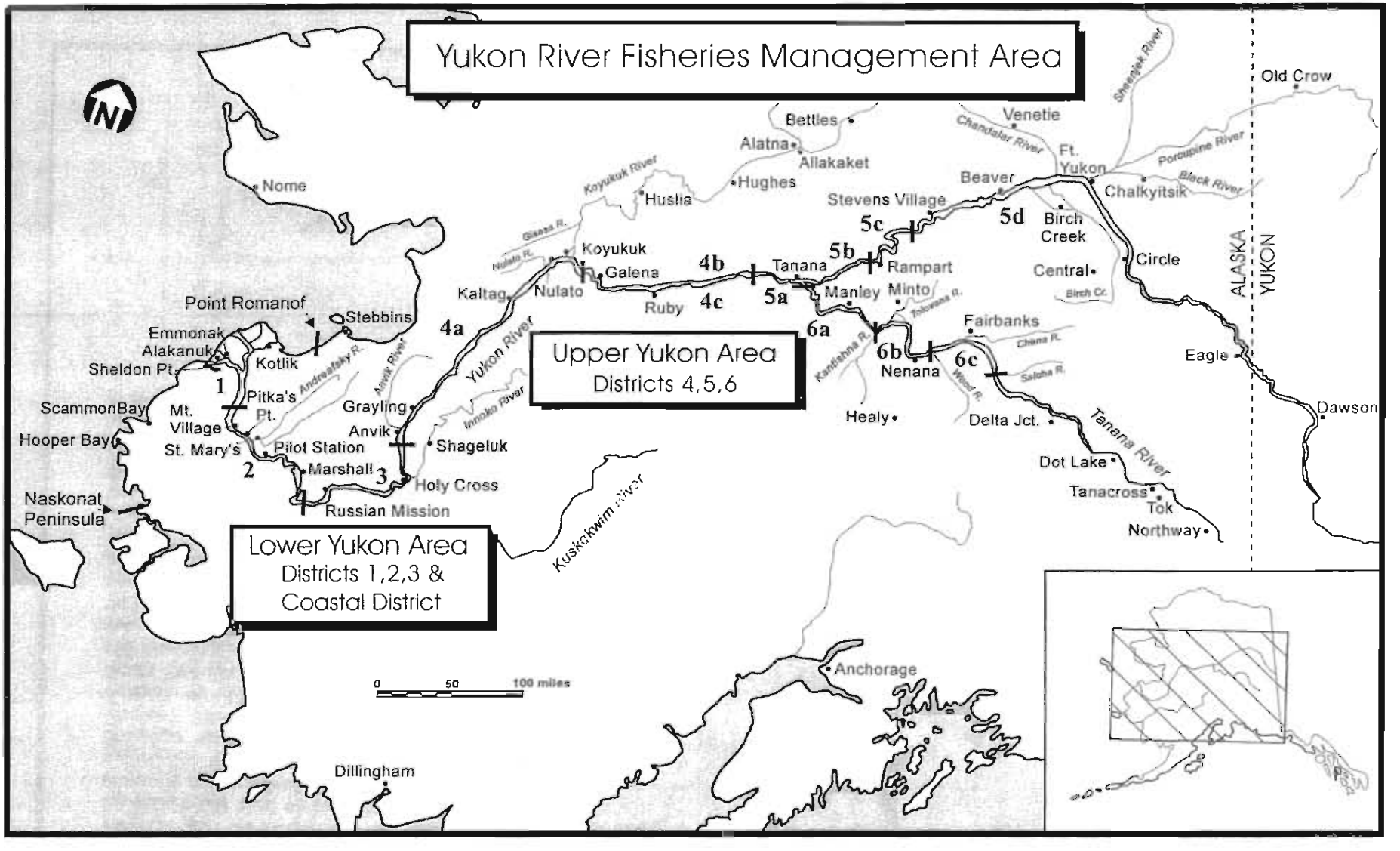
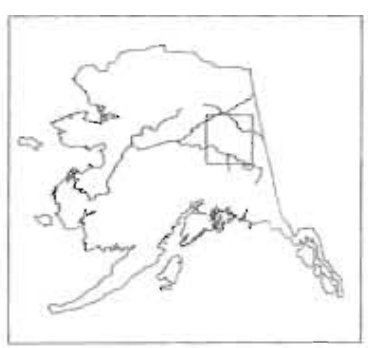


Figure 1. The Yukon Area showing communities and fishing districts, 2000.

5 AAC 99.015 JOINT BOARD NONSUBSISTENCE AREAS. (4) The Fairbanks Nonsubsistence Area is comprised of the following: within Unit 20(A) as defined by 5 AAC 92.450(20)(A) east of the Wood River drainage and south of the Rex Trail but including the upper Wood River drainage south of its confluence with Chicken Creek, within Unit 20(B) as defined by 5AAC 92.450(20)(B) the North Star Borough and that portion of the Washington Creek drainage east of the Elliot Highway within 20(D) as defined by 5 AAC 92.450(20)(D) west of the Tanana River between its confluence's with the Johnson and Delta Rivers, west of the west bank of the Johnson River, and north and west of the Volkmar drainage, including the Goodpaster River drainage, and within Unit 25(C) as defined by 5 AAC 92.450(25)(C) the Preacher and Beaver Creek drainages.



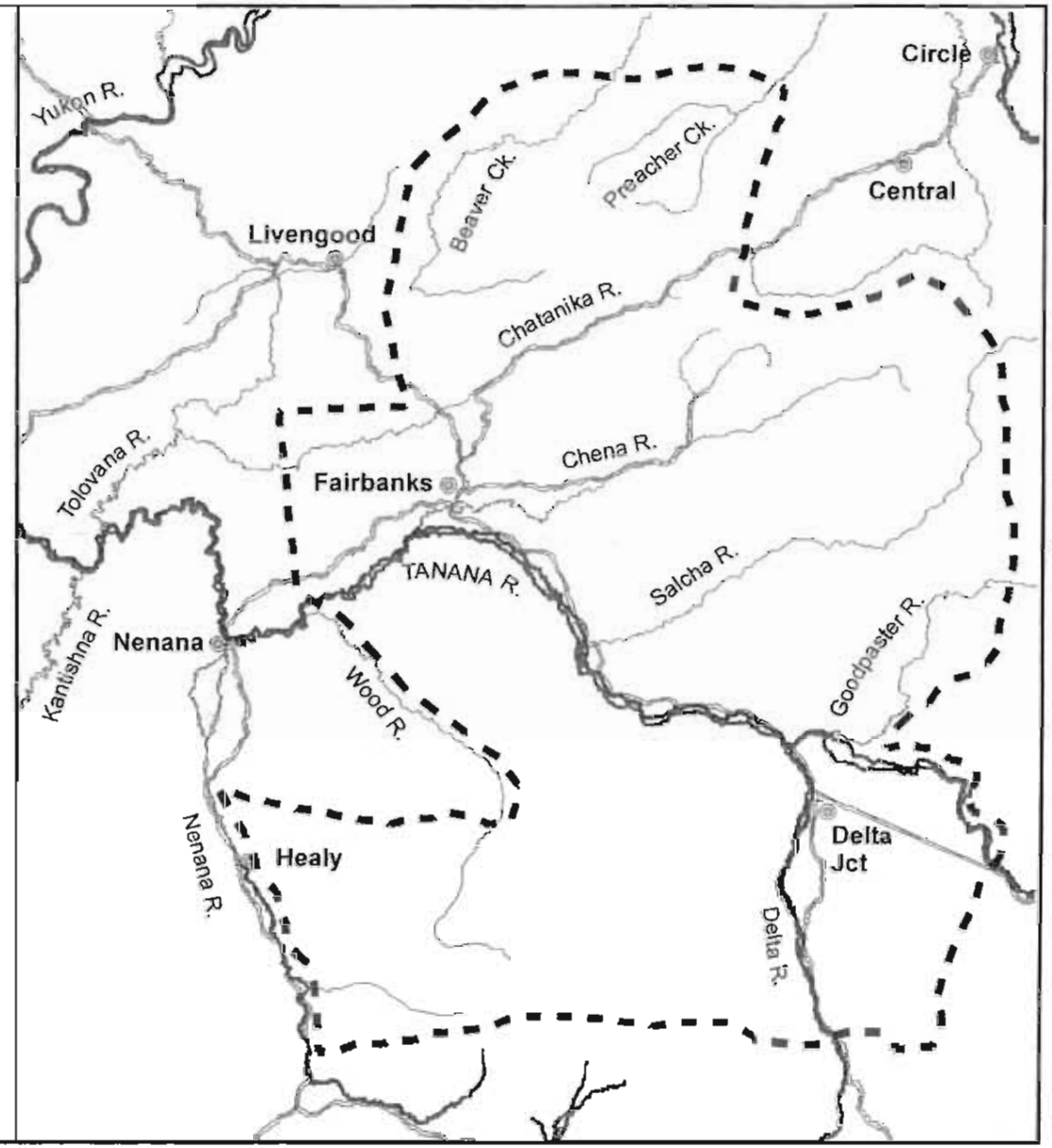


Figure 2. The Fairbanks Nonsubsistence Area.

Figure 3. The Yukon River drainage fall chum salmon management plan, 2000.

Run Size Estimate *b* (Point Estimate)	Recommended Management Action *a* Fall Chum Salmon Directed Fisheries				Targeted Drainagewide Escapement
	Commercial	Personal Use	Sport	Subsistence	
350,000 or Less	Closure	Closure	Closure	Closure *c*	350,000
350,001 to 450,000	Closure	Closure	Closure	Restrictions *d*	350,000
450,001 to 550,000	Closure	Closure	Closure	Restrictions *d*	375,000
550,001 to 600,000	Closure	Closure *e*	Closure *e*	Restrictions *d*	400,000
600,001 to 675,000	Closure	Normal Fishing Schedules	Retention Allowed	Normal Fishing Schedules	400,000 or More
Greater Than 675,000	Commercial Fishing Considered *f*	Normal Fishing Schedules	Retention Allowed	Normal Fishing Schedules	400,000 or More

a Considerations for the Toklat River and Canadian Mainstem rebuilding plans may require more restrictive management actions.

b The department will use the best available data including preseason projections, mainstem river sonar passage estimates, test fisheries indices, subsistence and commercial fishing reports, and passage estimates from escapement monitoring projects to assess the run size.

c The department may, by emergency order, allow subsistence chum salmon directed fisheries where indicator(s) suggest that the escapement goal(s) in that area will be achieved.

d The department may, by emergency order, allow a less restrictive or a normal subsistence fishing schedule in areas that indicator(s) suggest that the escapement goal(s) in that area will be achieved.

e The department may, by emergency order, allow personal use and sport fishing in areas that have normal subsistence fishing schedules and indicator(s) that suggest the escapement goal(s) in that area will be achieved.

f When the projected run size is more than 675,000 chum salmon, the department may allow for a drainage-wide commercial fishery with the targeted harvest of the surplus above 625,000 chum salmon distributed by district or subdistrict proportional to the guideline established in harvest range 5 AAC 05.365. The department shall distribute the harvest at levels below the low end of the guideline harvest range by district or subdistrict proportional to the mid-point of the guideline harvest range.

5 AAC 05.365. (4) manage the commercial fishery during the fall chum salmon season for a guideline harvest range of 72,750 to 320,500 chum salmon, distributed as follows:

(A) Districts 1, 2 and 3:	60,000 to 220,000 chum salmon;
(B) Subdistricts 4-B and 4-C:	5,000 to 40,000 chum salmon;
(C) Subdistrict 5-A:	0 to 4,000 pounds chum salmon roe;
(D) Subdistricts 5-B and 5-C:	4,000 to 36,000 chum salmon;
(E) Subdistrict 5-D:	1,000 to 4,000 chum salmon;
(F) District 6:	2,750 to 20,500 chum salmon.

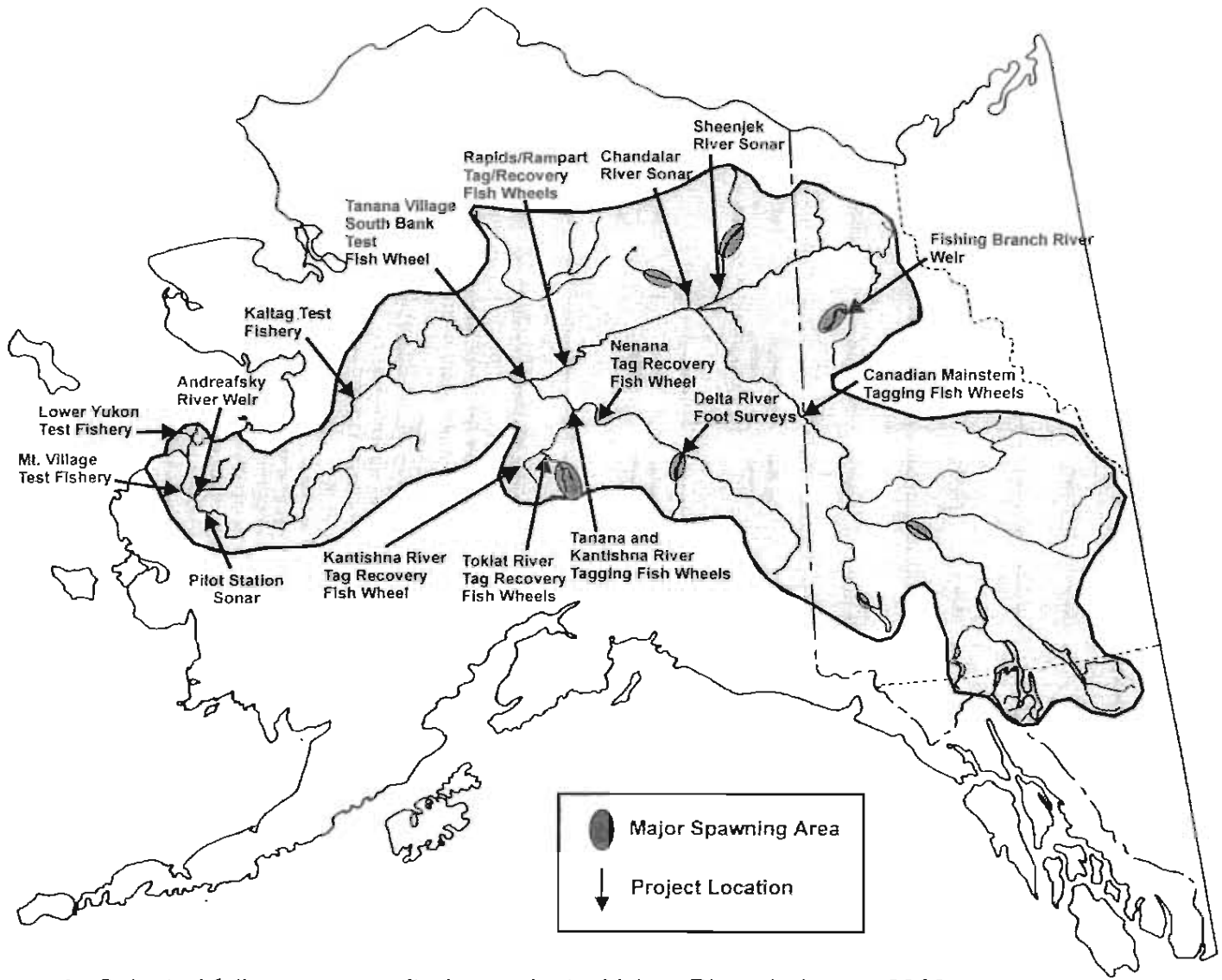
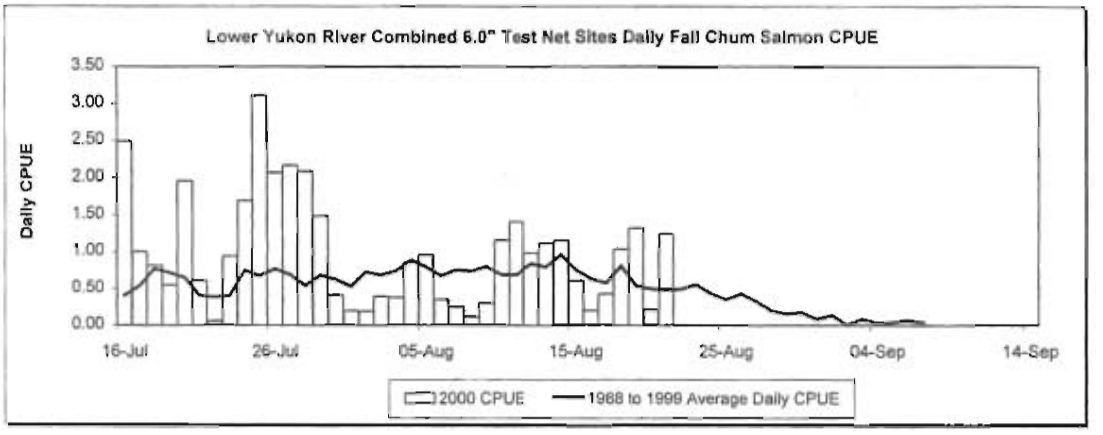
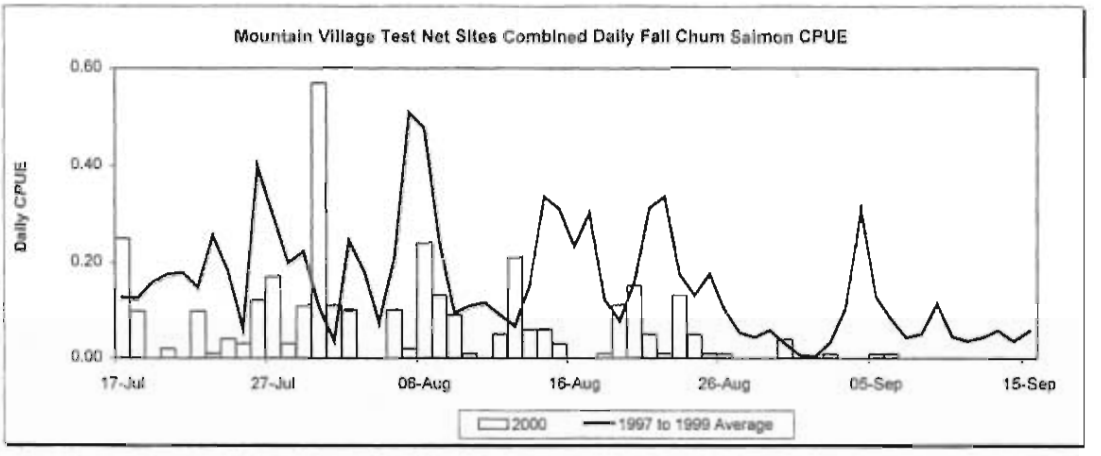
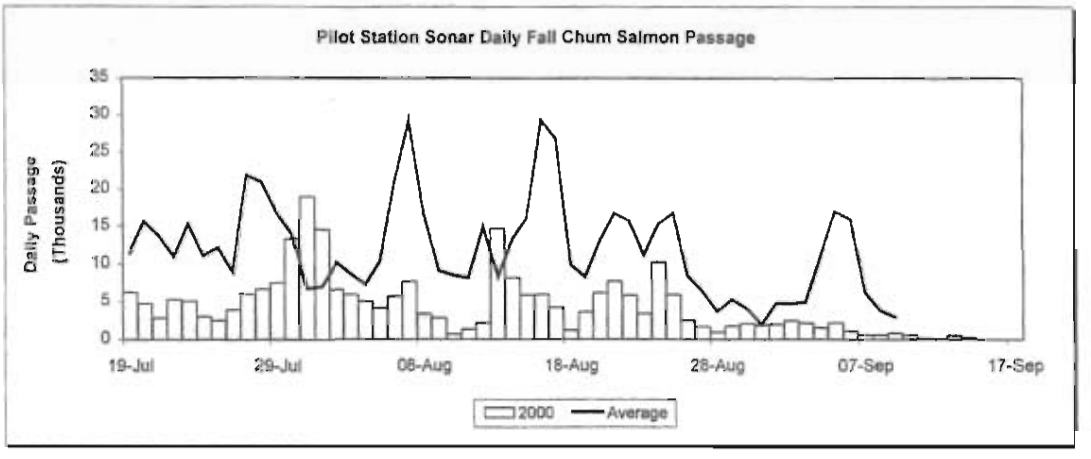


Figure 4. Selected fall season monitoring projects, Yukon River drainage, 2000.







(Top) Historical fall chum salmon daily catch-per-unit-effort (CPUE), Big Eddy (sites 1 and 2) and Middle Mouth (sites 1 and 2) combined, set gillnet test fishery, Lower Yukon River, 1988 to 1999 average, compared to 2000.
(Middle) Historical fall chum salmon daily catch-per-unit effort (CPUE), drift gillnet test fishery, located near the village of Mountain Village, 1997 to 1999 average compared to 2000.
(Bottom) Daily sonar passage counts attributed to fall chum salmon, located near the village of Pilot Station, Yukon River, 1995, and 1997 to 1999 compared to 2000.

Figure 5. Fall chum salmon CPUE for Lower Yukon and Mountain Village test net sites and Pilot Station sonar passage for 2000.

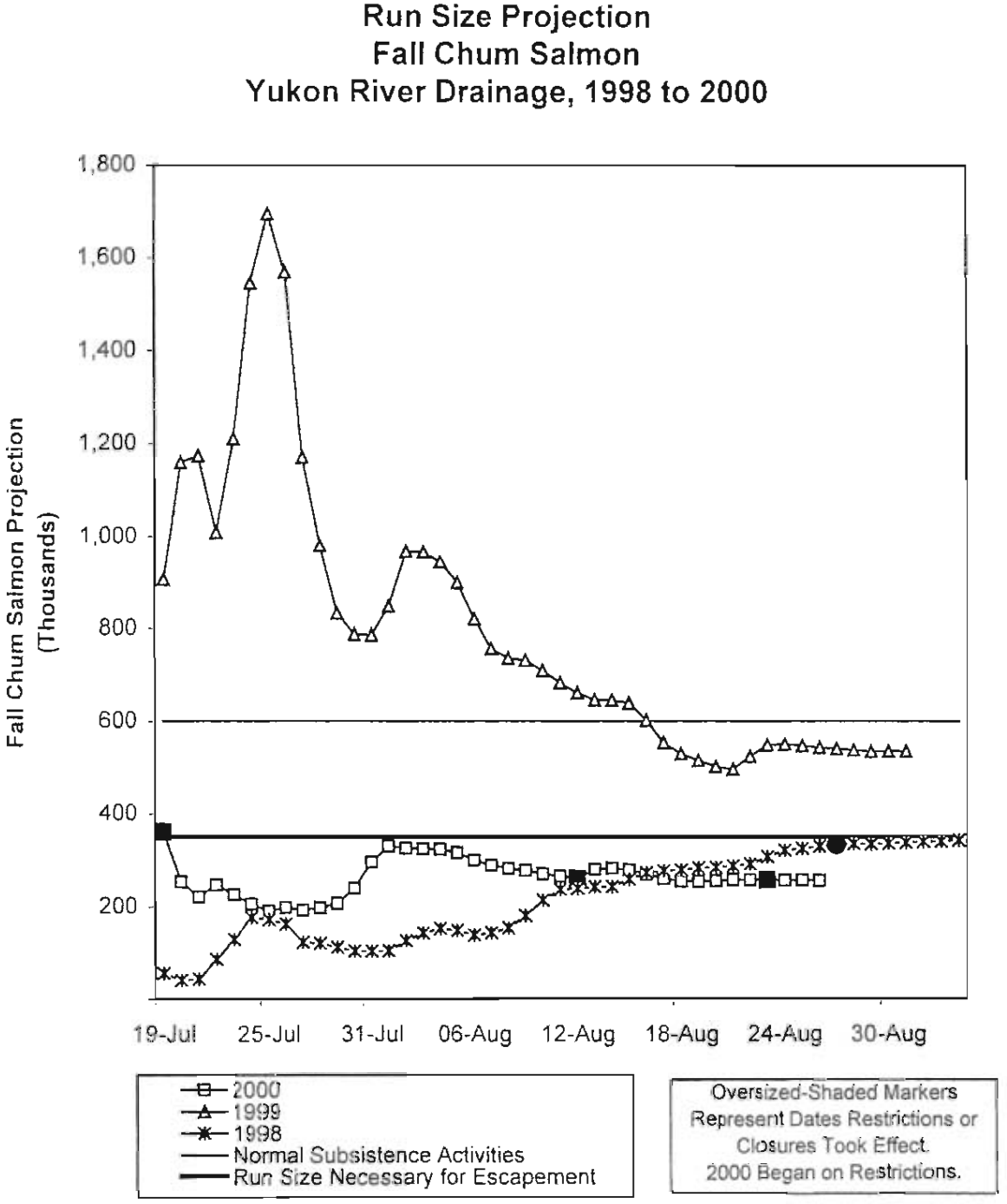
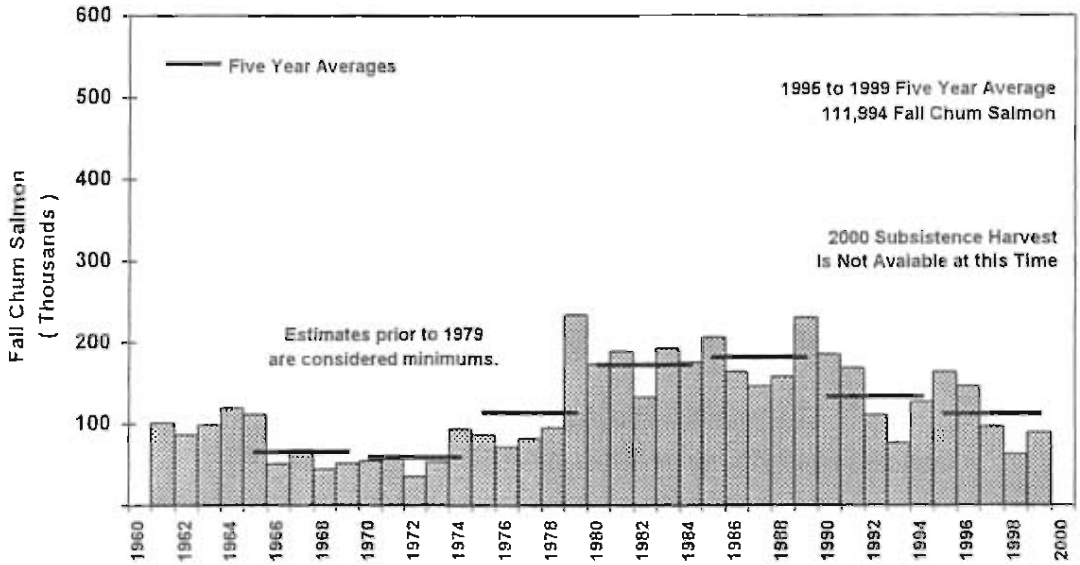


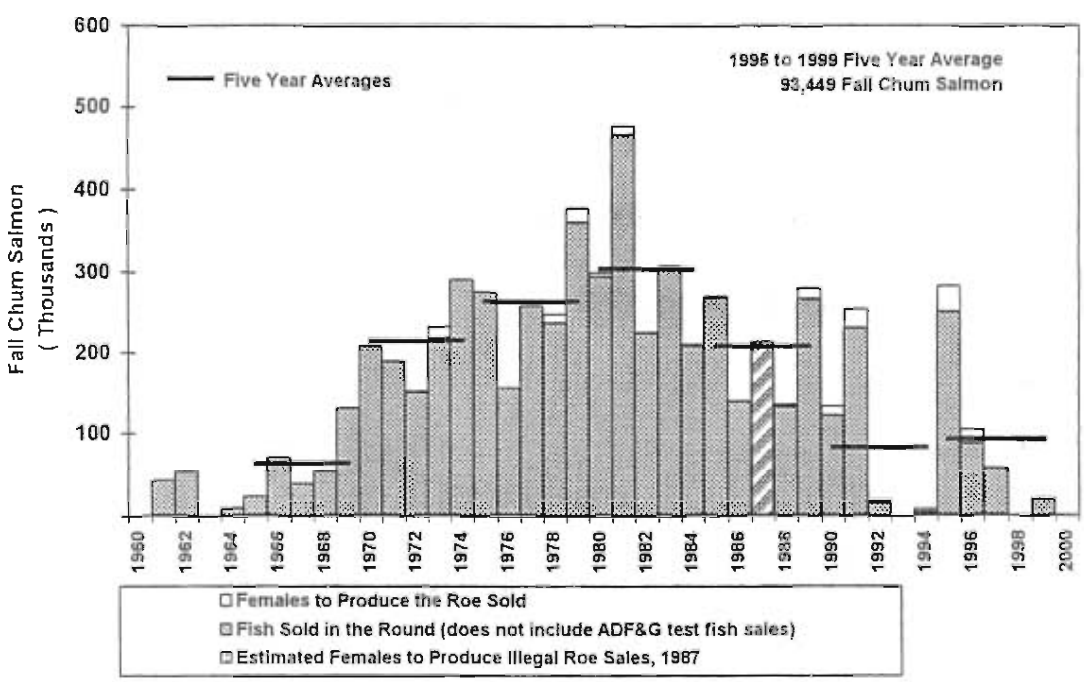
Figure 6. Daily end of the season run size projection using Pilot Station sonar's average run timing and the Pilot Station sonar's mid-point passage estimate, fall chum salmon, Yukon River drainage, 1998 and 1999 compared to 2000.

YUKON AREA, ALASKA
FALL CHUM SALMON

SUBSISTENCE USE



COMMERCIAL HARVEST



Note: Both graphs are on the same scale.

Figure 7. Subsistence use and commercial harvest of fall chum salmon, Yukon Area, Alaska, 1961 to 2000.

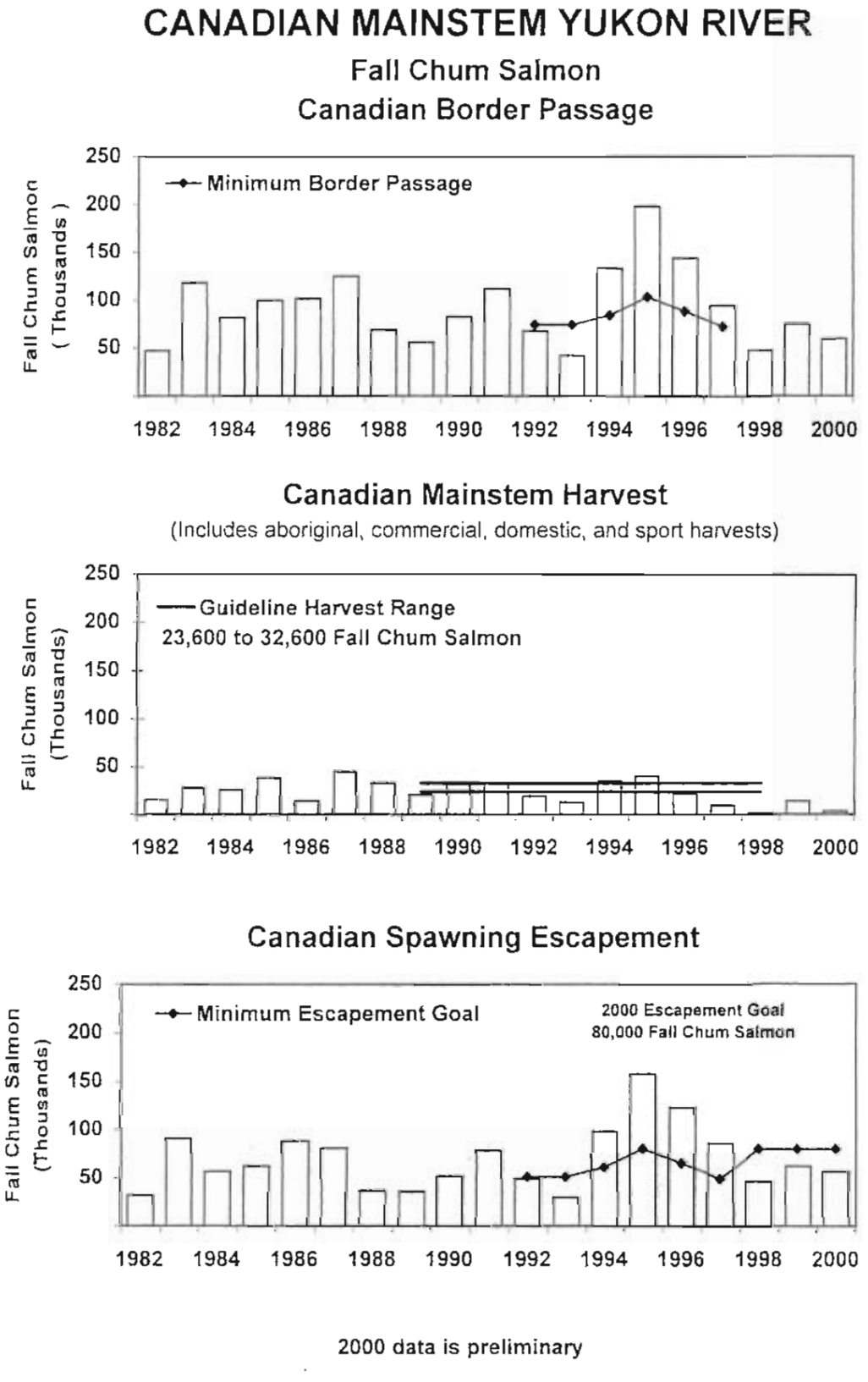
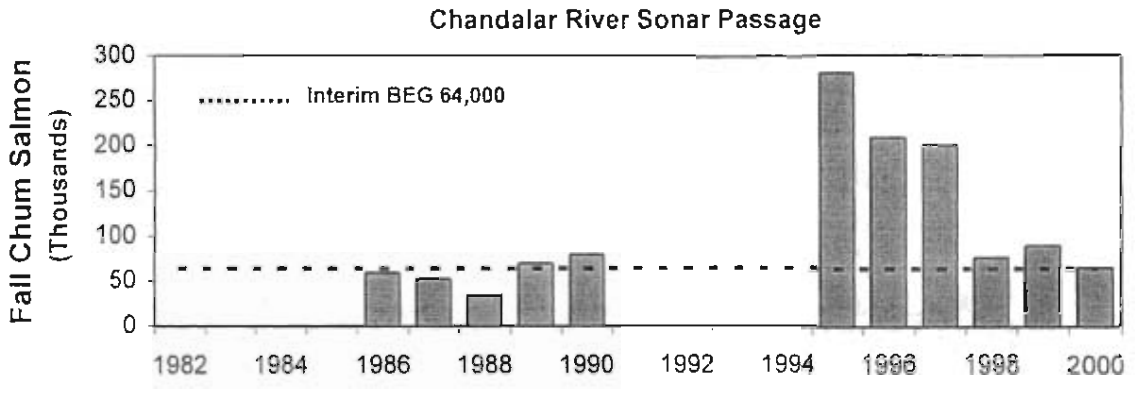
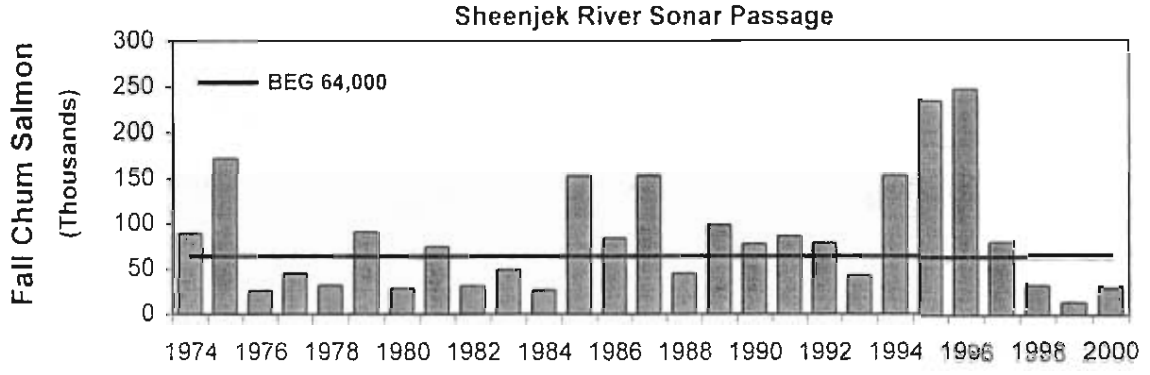
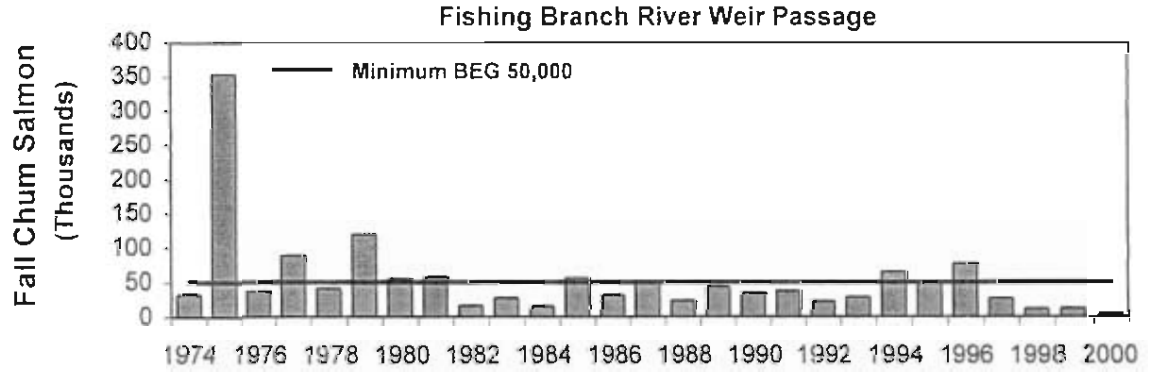


Figure 8. Canadian mainstem border passage, harvest and escapement estimates, 1982 to 2000, and targeted goals for the rebuilding period from 1992 through 1997, along with the minimum escapement goals for 1998 to 2000.



Chandalar sonar operated from 1986 to 1990 with a Bendix sonar and 1995 to 2000 with a Split Beam sonar. Interim BEG of 64,000 based on neighboring system (Sheenjek River).





2000 Data is preliminary

Figure 9. Estimated escapements and Biological Escapement Goals (BEG's) for the Chandalar, Sheenjek, and Fishing Branch Rivers, 1974 to 2000.

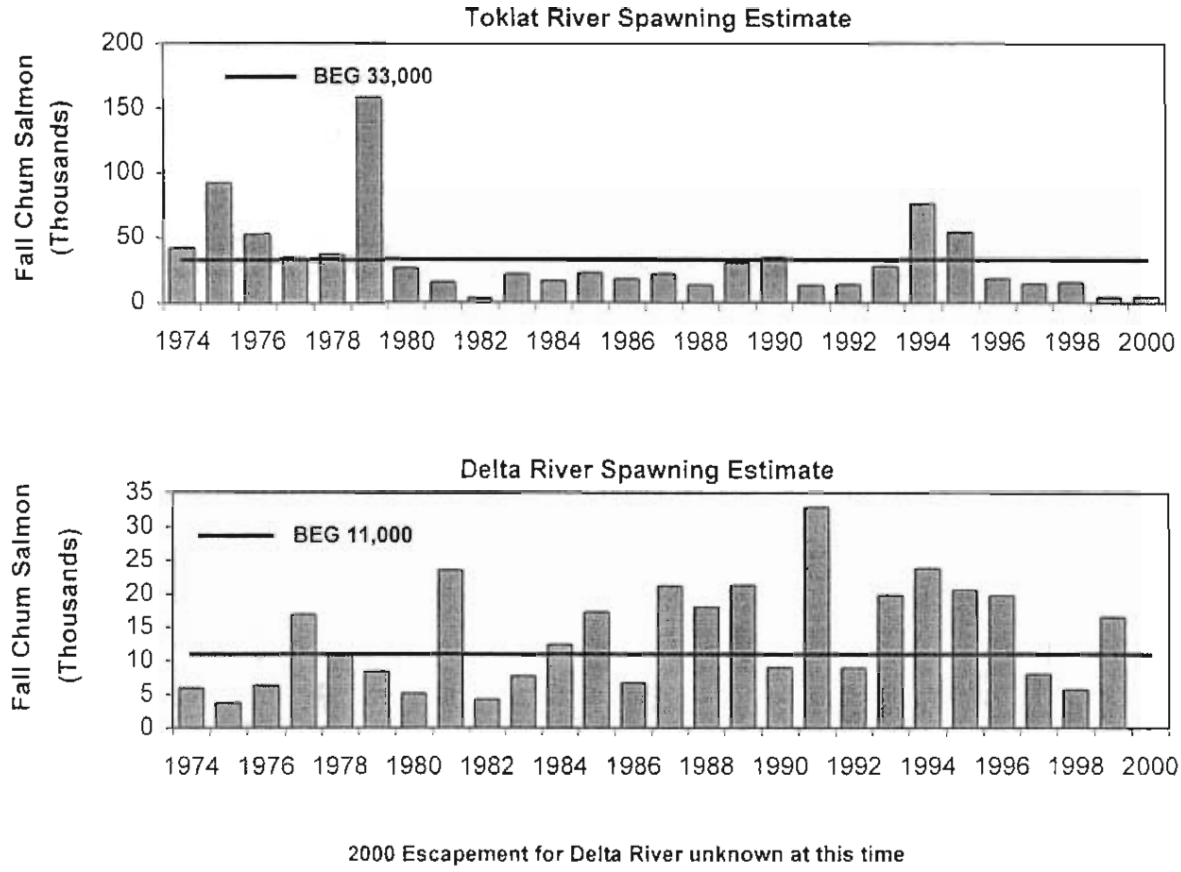
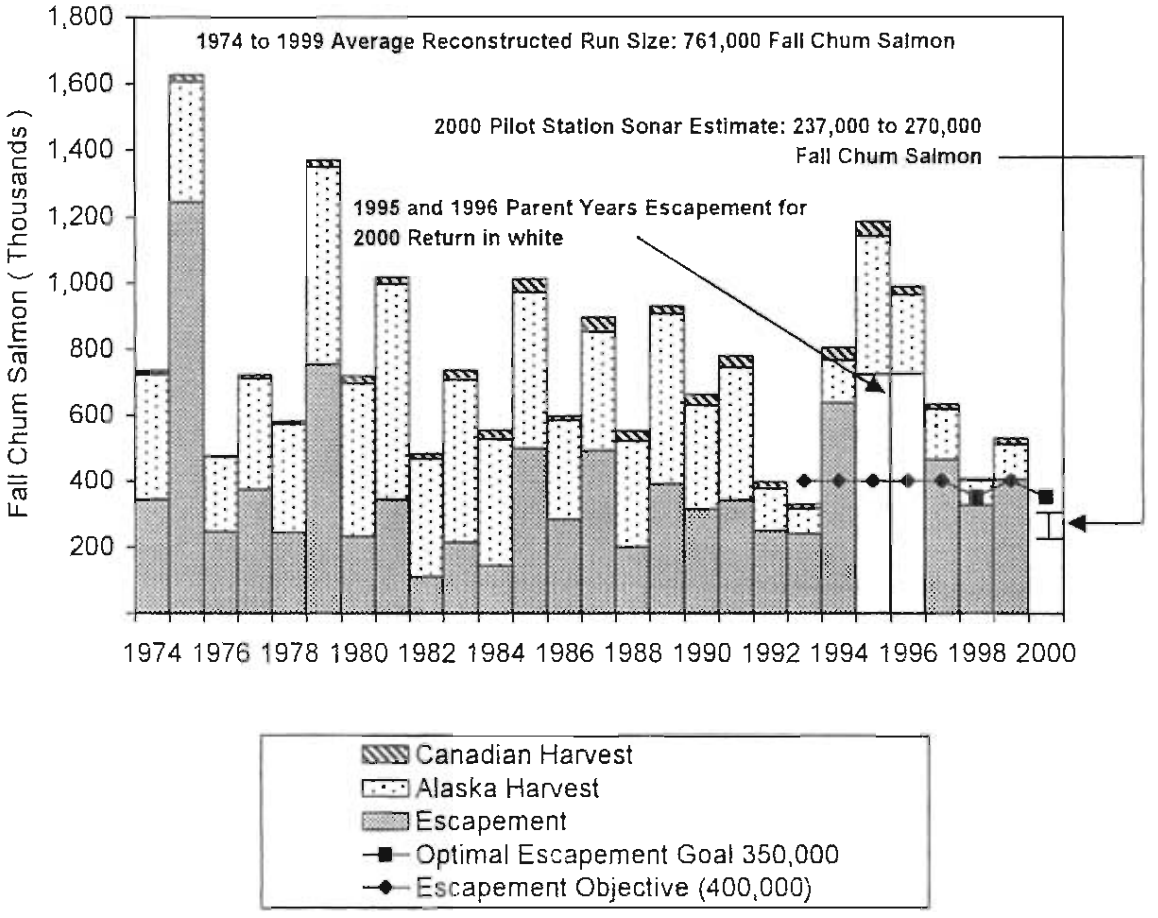


Figure 10. Estimated escapement and Biological Escapement Goals (BEG's) for the Toklat and Delta Rivers, 1974 to 2000.

YUKON RIVER DRAINAGE

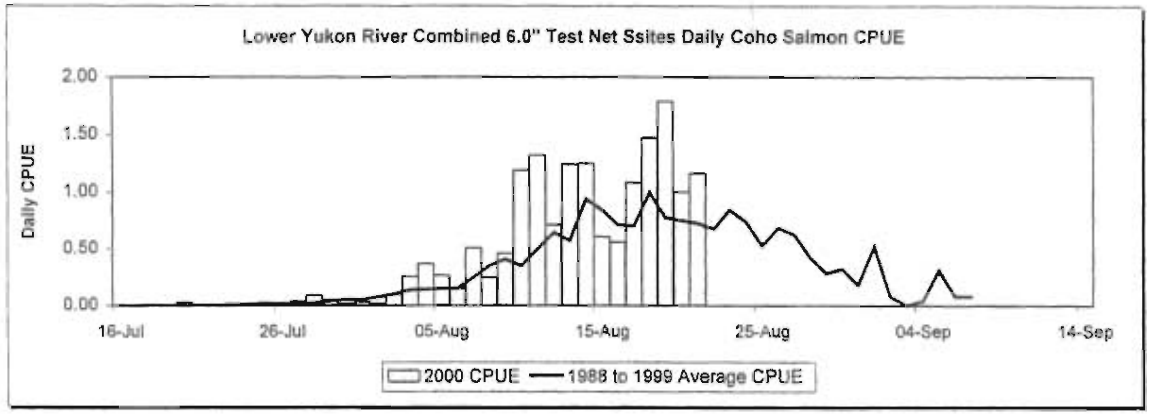
ALASKA AND CANADA

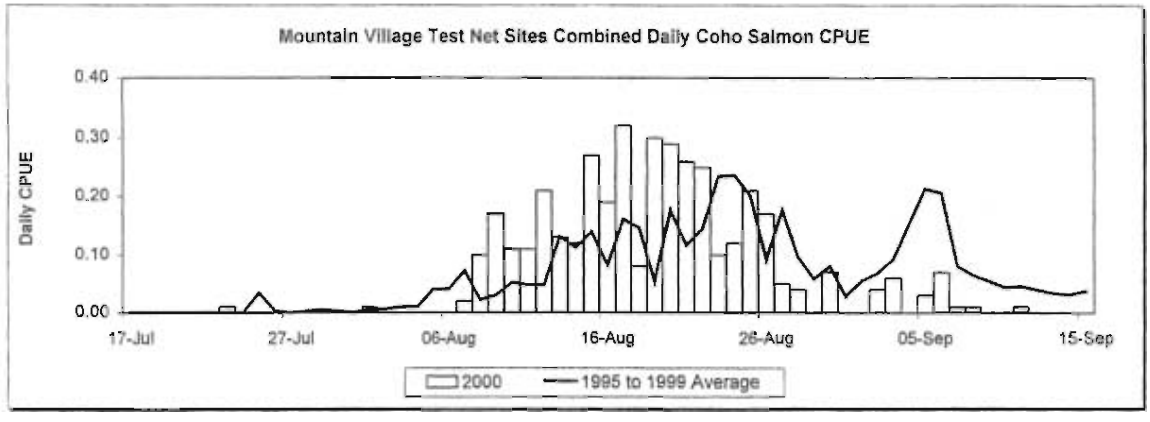
FALL CHUM SALMON HARVEST AND ESCAPEMENT

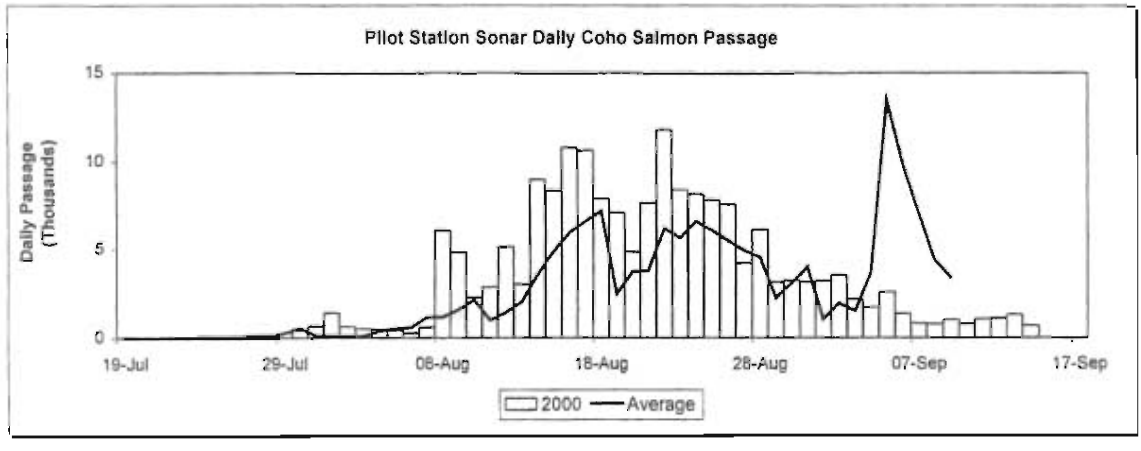


The drainage wide escapement goal is 400,000 fall chum salmon established in 1993. In 1996 an optimal escapement goal of 350,000 fall chum salmon was established in the Yukon River Fall Chum Salmon Management Plan and was utilized in 1998 and 2000. Historical escapement and harvest estimates as provided in the Yukon River Fall Chum Salmon Run Size, 1999, Memorandum, by L. Barton, dated April 21, 2000.

Figure 11. Estimated harvest and escapement, fall chum salmon, Yukon River drainage, 1974 to 1999, and the estimated passage range for Pilot Station sonar in 2000.







(Top) Historical coho salmon daily catch-per-unit-effort (CPUE), Big Eddy (sites 1 and 2) and Middle Mouth (sites 1 and 2) combined, set gillnet test fishery, Lower Yukon River, 1988 to 1999 average, compared to 2000.
(Middle) Historical coho salmon daily catch-per-unit effort (CPUE), drift gillnet test fishery, located near the village of Mountain Village, 1995 to 1999 average compared to 2000.
(Bottom) Daily sonar passage counts attributed to coho salmon, located near the village of Pilot Station, Yukon River, 1995, and 1997 to 1999 compared to 2000.

Figure 12. Coho salmon CPUE for Lower Yukon and Mountain Village test net sites and Pilot Station sonar passage for 2000.

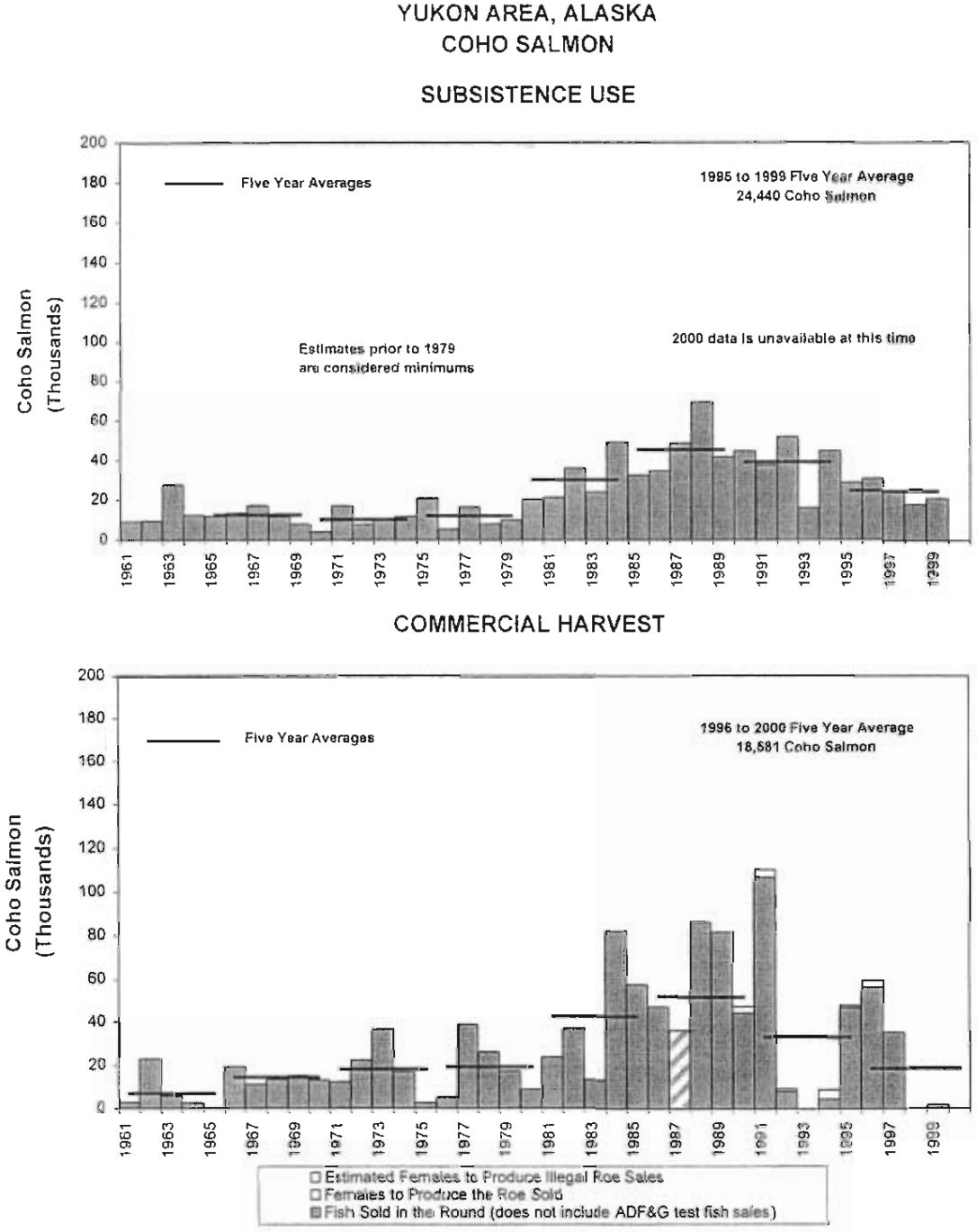


Figure 13. Subsistence use and commercial harvest of coho salmon, Yukon Area, Alaska, 1961 to 2000.

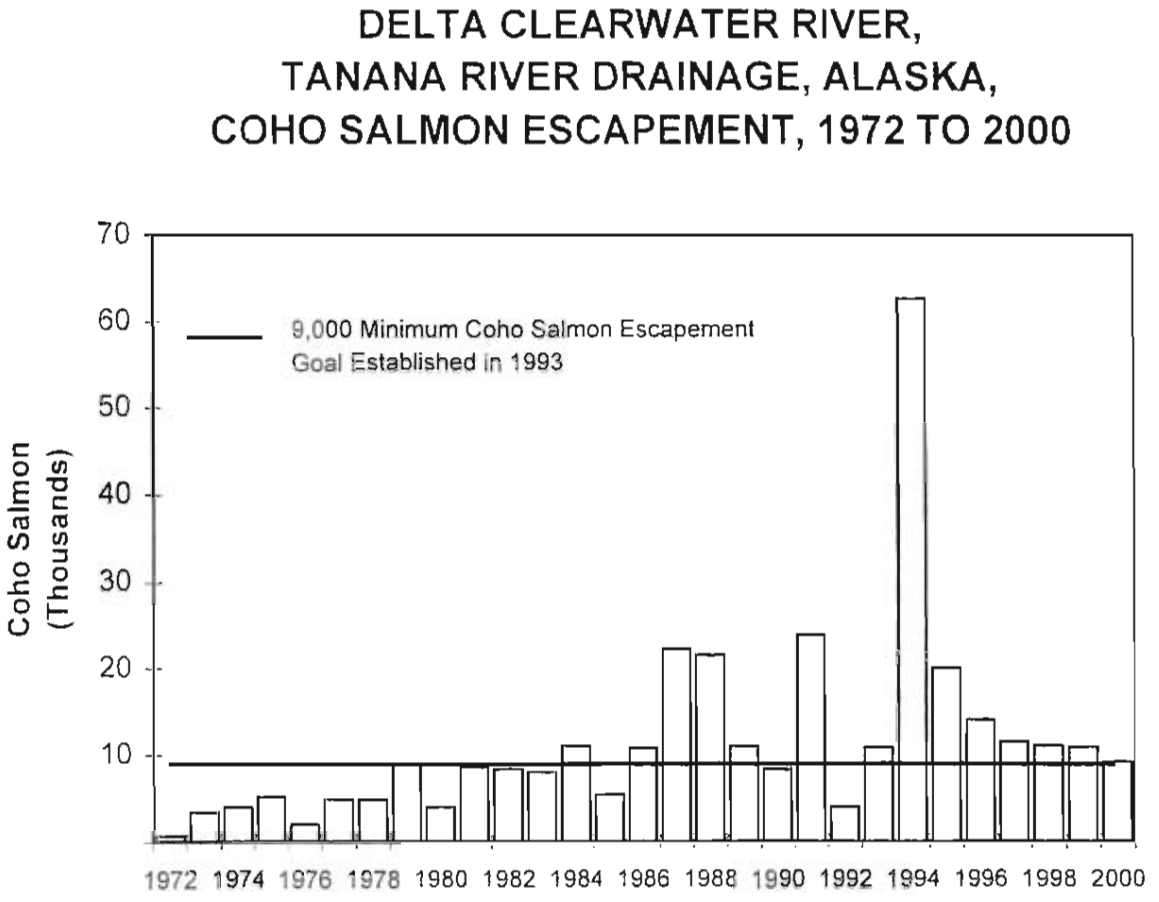


Figure 14. Coho salmon escapement estimates, Delta Clearwater River, Tanana River drainage, Alaska, 1972 to 2000.

Table 1. Fall chum salmon passage estimates or escapement estimates for selected spawning areas, Yukon River drainage, 1971 to 2000. a

	Alaska								Canada	
		Tanana River Drainage				Upper Yukon River Drainage				
Year	Yukon River Mainstem Sonar Estimate	Toklat River b	Upper Tanana River Tagging Estimate c	Delta River d	Bluff Cabin Slough e	Rampart Rapids Tagging Estimate f	Chandalar River g	Sheenjek River h	Fishing Branch River j	Mainstem Escapement Tagging Estimate k
1971									312,800	
1972				5,384					35,125 m	
1973				10,469					15,989 n	
1974		41,798		5,915				89,956 p	32,525 n	
1975		92,265		3,734 r				173,371 p	353,282 n	
1976		52,891		5,312 r				26,354 p	36,584	
1977		34,887		16,876 r				45,544 p	88,400	
1978		37,001		11,136				32,449 p	40,800	
1979		158,336		8,355				91,372 p	119,898	
1980		26,346		5,137				28,933 p	55,268	
1981		15,623		23,508				74,560	57,386 s	
1982		3,624		4,235	1,156			31,421	15,901	31,958
1983		21,869		7,705	12,715			49,392	27,200	90,875
1984		16,758		12,411	4,017			27,130	15,150	56,633 t
1985		22,750		17,276 r				152,768	56,016 n	62,010
1986		17,976		6,703 r	3,458		59,313	84,207 v	31,723 n	87,940
1987		22,117		21,180	9,395		52,416	153,267 v	48,956 n	80,776
1988		13,436		18,024			33,619	45,206 v	23,597 n	36,786
1989		30,421		21,342 r			69,161	99,116 v	43,834 n	35,750
1990		34,739		8,992 r	1,632		78,631	77,750 v	35,000 w	51,735
1991		13,347		32,905 r	7,198			86,496 x	37,733 n	78,461
1992		14,070		8,893 r				78,808 x	22,517 n	49,082
1993	292,000	27,838		19,857				42,922 x	28,707 n	29,743
1994		76,057		23,777 r				153,013 x y	65,247 n	98,358
1995	1,247,000	54,513 z	268,173	20,587	19,460		280,999	235,000 x y	51,959 n aa	158,092
1996		18,264	134,563 y	19,758 r	3,920	654,296	208,170	247,965 x y	77,278 n	122,429
1997	623,367	14,511	71,661	7,705 r	3,145	369,546	199,674	80,423 ab	26,959 n	85,439
1998	397,157	15,605	62,384	7,804 r	2,110	194,963	75,811	32,894	13,248 n	46,305
1999	510,891	4,551	104,869	16,534	5,078	189,742	88,662	14,229	12,904 n	65,964
2000 y	253,512	5,095 ac	47,635				64,500	30,000	5,072 n	56,488
All Years Average	553,988	32,840	114,881	13,304	6,107	352,137	110,105	84,813	59,569	69,728
Five Year Average 1994-1999	-	21,489	128,330	14,478	6,743	352,137	170,703	122,102	36,470	95,646
Biological Escapement Goal		> 33,000		> 11,000				> 64,000 ac	50,000 to 120,000	> 80,000 ad

-Continued-

Table 1. Fall chum salmon passage estimates or escapement estimates for selected spawning areas, Yukon River drainage, 1971 to 2000. a

a	Latest table revision November 20, 2000.
b	Total abundance estimates for the upper Toklat River drainage spawning index area using stream life curve method developed with 1987 to 1993 data.
c	Fall chum salmon passage estimate for the upper Tanana River drainage based on tag deployment from a fishwheel (two fishwheels in 1995) located just upstream of the Kantishna River and recaptures from two fishwheels located downstream from the village of
d	Total escapement estimate generated from the migratory time density curve method, unless otherwise indicated.
e	Peak counts from foot or aerial surveys.
f	Fall chum salmon passage estimate for the upper Yukon River drainage based on tag deployment at two fishwheels located at the "Rapids" and recaptured at two fishwheels located
g	Side-scan sonar estimate, in 1986 through 1990. Split beam sonar estimate since 1995.
h	Side-scan sonar estimate unless otherwise indicated.
j	Located within the Canadian portion of the Porcupine River drainage. Total escapement estimated using weir to aerial survey expansion factor of 2.72, unless otherwise indicated.
k	Estimated border passage minus Canadian mainstem harvest and excluding Canadian Porcupine River drainage escapement.
m	Weir installed on September 22. Estimate consists of a weir count of 17,190 after September 22, and a tagging passage estimate of 17,935 prior to weir installation.
n	Weir count.
p	Total escapement estimate using sonar to aerial survey expansion factor of 2.22.
r	Population estimate generated from replicate foot surveys and stream life data (area under the curve method).
s	Initial aerial survey count was doubled before applying the weir to aerial expansion factor of 2.72 since only half of the spawning area was surveyed.
t	Escapement estimate based on mark-recapture program unavailable. Estimate based on assumed average exploitation rate.
v	Expanded estimates for period approximating second week August through middle fourth week September, using Chandalar River run timing data.
w	A single survey flown October 26, counted 7,541 chum salmon. A population estimate of approximately 27,000 fish was made through date of survey, based upon historic average aerial to weir expansion of 28%. Actual population of spawners was reported by DF
x	Total abundance estimates are for the period approximating second week August through middle fourth week of September. Comparative escapement estimates prior to 1986 are considered more conservative; approximating the period of end of August through midd
y	Preliminary.
z	Minimal estimate because of late timing of ground surveys with respect to peak of spawning.
aa	Minimal count because weir was closed while submerged due to high water, during the period August 31 to September 8.
ab	The passage estimate includes an additional 15,134 salmon that were estimated to have passed during 127 hours that the sonar was inoperable due to high water from August 29
ac	Based on escapement estimates for the years 1974 to 1990.
ad	The escapement goal after rebuilding is greater than 80,000 fish. Rebuilding plan for the years 1990 to 2001 has been established.
ac	Aerial Survey in R-22 helicopter one week after foot surveys.

Table 2. Estimated fall chum salmon subsistence harvest by fishing district and by community of residence, Yukon Area, 1988-1999. a

Community	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	1989-1993 Average	1994-1998 Average
Hooper Bay	1,711 b	146 b			127	113	284	207	392	0	0	0	524 c	177
Scammon Bay	551 b	10 b			79	7	63	147	0	0	34	204	162 c	49
Coastal District Subtotal	2,262	156			206	120	347	354	392	0	34	204	686	225
Sheldon Point	269	586	102	84	490	158	25	256	21	337	256	115	264	181
Alakanuk	1,194	430	267	193	401	182	73	631	100	900	665	558	295	474
Emmonak	1,792	840	2,353	2,027	1,628	1,507	3,441	1,614	1,501	1,039	867	1,849	1,671	1,692
Kotlik	2,200	3,058	2,813	1,631	2,697	5,923	1,348	2,197	2,525	856	1,365	3,980	3,184	1,658
District 1 Subtotal	5,475	4,914	5,335	3,935	5,216	7,770	4,887	4,698	4,147	3,132	3,163	6,502	5,434	4,005
Mountain Village	1,880	4,641	1,566	1,473	1,052	1,113	797	1,347	1,366	2,696	2,031	1,968	1,969	1,648
Pitkas Point	622	275	150	610	77	268	294	99	603	178	233	53	276	281
St. Marys	1,911	1,695	806	1,592	2,356	440	1,062	542	658	310	416	722	1,378	598
Pilot Station	1,372	1,872	1,941	1,062	1,170	1,017	1,527	575	448	1,106	1,162	1,155	1,412	964
Marshall	2,815	1,532	1,724	891	2,727	256	471	754	2,212	388	640	696	1,426	893
District 2 Subtotal	8,600	10,015	6,187	5,628	7,382	3,094	4,151	3,317	5,287	4,680	4,482	4,594	6,461	4,383
Russian Mission	1,151	308	878	425	648	172	11	865	587	0	137	100	486	320
Holy Cross	596	711	1,178	190	845	1,066	665	681	1,814	420	1,095	239	798	935
Shageluk	0	4	0	0	865	211	186	126	305	367	329	76	216	263
District 3 Subtotal	1,747	1,023	2,056	615	2,358	1,449	862	1,672	2,706	787	1,561	415	1,500	1,518
Lower Yukon River Total	15,822	15,952	13,578	10,178	14,956	12,313	9,900	9,687	12,140	8,599	9,206	11,511	13,395	9,906
Anvik	136	168	583	452	894	420	155	269	457	514	388	126	503	357
Grayling	1,760	830	1,405	3,616	2,993	2,083	811	1,155	1,759	1,531	648	1,370	2,185	1,181
Kaltag	2,293	1,654	2,327	2,834	2,522	704	630	644	1,049	1,142	499	764	2,008	793
Nulato	1,673	2,436	3,546	1,637	1,910	571	1,109	1,137	2,299	697	367	2,338	2,020	1,122
Koyukuk	587	2,460	860	2,761	2,817	2,052	1,049	814	2,458	1,954	1,583	1,544	2,190	1,572
Galena	4,308	6,436	3,202	5,525	2,393	3,255	3,963	3,202	6,820	3,370	1,915	1,932	4,162	3,814
Ruby/Kokrines	5,171	6,599	3,352	2,856	4,499	1,085	5,553	4,695	561	2,195	2,427	907	3,678	3,086
District 4 Yukon River Subtotal (Excluding the Koyukuk River)	15,928	20,583	15,275	19,681	18,028	10,170	13,270	11,916	15,203	11,403	7,827	8,981	16,747	11,924
Huslia	1,697	1,728	846	411	1,286	258	55	1,035	298	10	0	89	906	280
Hughes	311	260	70	270	325	169	0 d	263	274	51	60	84	219	130
Allakaket	326	1,969 f	2,470	475	1,452	233	0 d	260	961	270	11	20	991 g	300
Alatna	117	- f	580	38	127	2	0 d	0	0	0	0	0	173 g	0
Bettles	0	0	0	0	14	0	0	583	50	0	0	0	3	127
Koyukuk River Subtotal	2,451	3,957	3,966	1,194	3,204	662	55	2,141	1,583	331	71	193	2,291	836
District 4 Subtotal	18,379	24,540	19,241	20,875	21,232	10,832	13,325	14,057	16,786	11,734	7,898	9,174	19,039	12,760

-Continued-

Table 2. (page 2 of 2)

Community	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	1989-1993 Average	1994-1998 Average
Tanana	55,998	40,845	41,145	40,868	19,365	23,103	34,681	14,409	21,420	25,058	24,956	22,305	33,065	24,105
Rampart	3,600	2,472	10,818	5,801	5,701	3,272	1,007	1,403	896	646	100	4,324	5,613	810
Fairbanks h j	0	7	82	2,022	2,491	930	2,870	2,184	2,727	491	96	681	1,106	1,674
Stevens Village k	1,451	6,633	3,857	2,481	150	862	45	3,194	991	1,585	1,076	20	2,797	1,378
Beaver	96	7,242	757	7	361	692	2,069	1,231	9	243	409	16	1,812	792
Ft. Yukon	2,766	27,790	11,627	7,467	2,284	2,380	6,827	9,196	8,144	6,119	3,035	9,702	10,310	6,664
Circle j	3,646	4,478 m	6,639	6,340	6,279	349	4,581	5,102	5,308	3,707	37	2,722	4,651 g	3,747
Central j	750	- m	165	73	100	0	0	0	132	0	0	0	218 g	26
Eagle j	14,800	11,557	8,027	7,985	5,630	2,070	8,263	13,115	14,916	14,488	543	11,292	7,054	10,265
Other j n			529	100	0	1,750	0	830	505	421	50	65	595 p	361
District 5 Yukon River Subtotal (Excluding Chandalar/Black Rivers)	83,107	101,024	83,646	73,144	42,361	35,408	60,343	50,664	55,048	52,758	30,302	51,127	67,219	49,823
Venetie	34	7,977	5,377	758	3,066	7,881	4,302	6,085	7,195	1,564	658	2,011	5,012	3,961
Chalkyitsik	1,068	3,000	1,490	100	274	475	1,751	845	1,230	936	433	442	1,068	1,039
Chandalar/Black Rivers Subtotal	1,102	10,977	6,867	858	3,340	8,356	6,053	6,930	8,425	2,500	1,091	2,453	6,080	5,000
District 5 Subtotal	84,209	112,001	90,513	74,002	45,701	43,764	66,396	57,594	63,473	55,258	31,393	53,580	73,299	54,823
Manley j	6,899	21,087	25,860	13,243	7,010	3,215	13,722	20,272	10,662	5,887	4,411	5,172	14,083	10,991
Minto j	2,615	2,005	3,652	5,276	3,017	301	1,419	4,782	4,381	2,361	505	781	2,850	2,690
Nenana j	26,889	25,340	12,464	17,932	13,253	5,929	11,201	15,500	14,207	3,799	6,781	5,619	14,984	10,298
Fairbanks j r	0	0	309	1,671	1,394	56	5,006	6,384	5,736	4,031	960	1,630	686	4,423
Other r s		10,222	2,283	2,347	1,039	352	2,249	2,230	1,481	3,472	1,713	2,269	3,249	2,229
District 6 Tanana River Subtotal	36,403	58,654	44,568	40,469	25,713	9,853	33,597	49,168	36,467	19,550	14,370	15,471	35,851	30,630
Upper Yukon River Total	138,991	195,195	154,322	135,346	92,648	64,449	113,318	120,819	116,726	86,542	53,661	78,225	128,189	98,213
Alaska, Yukon River Total l	154,813	211,147	167,900	145,524	107,602	76,762	123,218	130,506	128,866	95,141	62,867	89,736	141,584	108,120
Alaska, Yukon Area Total	157,075	211,303	167,900	145,524	107,808	76,882	123,565	130,660	129,258	95,141	62,901	89,940	142,270	108,345

a Historic estimated subsistence harvests are available in each year's respective Yukon Area Annual Management Report (1961 to 1998). Beginning in 1988 subsistence salmon harvest estimates have been generated from a stratified random sample of village households. Estimates include test fish catches given away. Includes commercial related harvest to produce roe sold, 1982-1988. Blanks indicate harvest information was not collected.

b The community was not surveyed, harvest estimates were calculated from calendar and post card replies.

c Average harvest includes 1988, 1989, 1992 and 1993.

d Due to floods in 1994, Hughes, Allakaket, and Alatna were not surveyed and the estimated harvest of fall chum salmon was zero.

f Alatna and Allakaket harvests are combined in 1989.

g Average harvest includes 1988 and 1990 through 1993.

h Harvests by Fairbanks subsistence permit holders who fished in District 5 near the Yukon River bridge crossing.

j In 1988 and 1989, permit and household interview data were expanded for permits not returned. Beginning in 1990, reported harvest is from returned permits only.

k Includes Birch Creek except in 1988, 1990 and 1991. A harvest of zero fall chum salmon has been estimated in all years surveyed.

m Circle and Central harvests are combined in 1989.

n Other permit holders who fished in District 5 but did not reside in the villages listed.

p Average harvest includes 1990 through 1993.

r Harvests by Fairbanks subsistence permit holders who fished in the Tanana River.

s Other permits holders who fished in District 6 but did not reside in the villages listed.

l Does not include the Coastal District.

Table 3. Commercial fall chum salmon sales and estimated harvest by area, district, and country, Yukon River drainage, 1961-2000.

	Lower Yukon Area [b]				Upper Yukon Area [a]													
					District 4			District 5			District 6			Subtotal			Total		
Year	District 1	District 2	District 3	Subtotal	Numbers	Roe	Estimated Harvest [c]	Numbers	Roe	Estimated Harvest [c]	Numbers	Roe	Estimated Harvest [c]	Numbers	Roe	Estimated Harvest [c]	Estimated Harvest	Canada Total	Grand Total
1961	42,461	-	-	42,461	-	-	-	-	-	-	-	-	-	0	0	0	42,461	3,276	45,737
1962	53,116	-	-	53,116	-	-	-	-	-	-	-	-	-	0	0	0	53,116	936	54,052
1963	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	2,196	2,196
1964	8,347	-	-	8,347	-	-	-	-	-	-	-	-	-	0	0	0	8,347	1,929	10,276
1965	22,936	-	-	22,936	-	-	-	-	-	-	-	-	-	381	0	381	23,317	2,071	25,388
1966	69,836	-	1,209	71,045	-	-	-	-	-	-	-	-	-	0	0	0	71,045	3,157	74,202
1967	36,451	-	1,823	38,274	-	-	-	-	-	-	-	-	-	0	0	0	38,274	3,343	41,617
1968	49,857	-	3,068	52,925	-	-	-	-	-	-	-	-	-	0	0	0	52,925	453	53,378
1969	128,866	-	1,722	130,588	-	-	-	-	-	-	-	-	-	722	0	722	131,310	2,279	133,589
1970	200,306	4,858	3,285	208,449	-	-	-	-	-	-	-	-	-	1,146	0	1,146	209,595	2,479	212,074
1971	188,533	-	-	188,533	-	-	-	-	-	-	-	-	-	1,061	0	1,061	189,594	1,761	191,355
1972	136,711	12,898	1,313	150,922	-	-	-	-	-	-	-	-	-	1,254	0	1,254	152,176	2,532	154,708
1973	173,783	45,304	-	219,087	-	-	-	-	-	-	-	-	-	13,003	0	13,003	232,090	2,806	234,896
1974 [d]	176,036	53,640	552	230,128	9,213	-	9,213	23,551	-	23,551	26,884	-	26,884	59,648	0	59,648	289,776	2,544	292,320
1975	158,183	51,666	5,590	215,439	13,666	-	13,666	27,212	-	27,212	18,692	-	18,692	59,570	0	59,570	275,009	2,500	277,509
1976	105,851	21,212	4,250	131,313	1,742	-	1,742	5,387	-	5,387	17,948	-	17,948	25,077	0	25,077	156,390	1,000	157,390
1977	131,758	51,994	15,851	199,603	13,980	-	13,980	25,730	-	25,730	18,673	-	18,673	58,383	0	58,383	257,986	3,990	261,976
1978	127,947	51,646	11,527	191,120	10,988	1,721	12,709	21,016	5,220	26,236	13,259	3,687	16,946	45,263	10,628	55,891	247,011	3,356	250,367
1979	109,406	94,042	25,955	229,403	48,899	3,199	52,098	47,459	8,097	55,556	34,185	7,170	41,355	130,543	18,466	149,009	378,412	9,084	387,496
1980	106,829	83,881	13,519	204,229	27,978	4,347	32,325	41,771	605	42,376	19,452	68	19,520	89,201	5,020	94,221	298,450	9,000	307,450
1981	167,834	154,883	19,043	341,760	12,082	1,311	13,393	86,620	6,955	93,575	25,989	3,019	29,008	124,691	11,285	135,976	477,736	15,260	492,996
1982	97,484	96,581	5,815	199,880	3,894	167	4,061	13,593	42	13,635	6,820	596	7,416	24,307	805	25,112	224,992	11,312	236,304
1983	124,371	85,645	10,018	220,034	4,482	1,963	6,445	43,993	0	43,993	34,089	3,101	37,190	82,564	5,064	87,628	307,662	25,990	333,652
1984	78,751	70,803	6,429	155,983	7,625	2,216	9,840	24,060	57	24,117	20,564	56	20,620	52,249	2,328	54,577	210,560	22,932	233,492
1985	129,948	40,490	5,164	175,602	24,452	2,525	26,977	25,338	0	25,338	42,352	0	42,352	92,142	2,525	94,667	270,269	35,746	306,015
1986	59,352	51,307	2,793	113,452	2,045	0	2,045	22,053	395	22,448	1,892	182	2,074	25,990	577	26,567	140,019	11,464	151,483
1987	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40,591	40,591
1988	44,890	31,845	2,090	78,825	15,662	1,421	17,083	16,989	0	16,989	21,844	1,806	23,650	54,495	3,227	57,722	136,547	30,263	166,810
1989	74,235	97,558	15,332	187,125	11,776	3,407	15,183	18,215	3,989	22,204	49,090	7,353	56,443	79,081	14,749	93,830	280,955	17,549	298,504
1990	25,269	37,077	3,715	66,061	4,989	2,351	8,166	7,778	1,058	8,975	43,182	7,535	50,975	55,949	10,944	68,117	134,178	27,537	161,715
1991	59,724	102,628	9,213	171,565	3,737	1,616	6,091	27,355	3,825	32,114	28,195	14,154	44,448	59,287	19,395	82,653	254,218	31,404	285,622
1992	0	0	0	0	0	0	0	0	0	0	15,721	2,806	19,022	15,721	2,806	19,022	19,022	18,576	37,598
1993	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7,762	7,762
1994	0	0	0	0	0	0	0	3,630	0	3,630	1	3,276	4,369	3,631	3,276	7,999	7,999	30,035	38,034
1995	79,345	90,831	0	170,176	2,924	4,126	8,731	9,778	18,815	30,033	67,855	9,560	74,117	80,557	32,501	112,881	283,057	39,012	322,069
1996	33,629	29,651	0	63,280	2,918	0	2,918	11,878	8,498	21,858	10,266	6,173	17,574	25,062	14,671	42,350	105,630	20,069	125,699
1997	27,483	24,326	0	51,809	2,458	0	2,458	2,446	1,194	3,920	0	0	0	4,904	1,194	6,378	58,187	8,068	66,255
1998	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1999	9,987	9,703	0	19,690	681	0	681	0	0	0	0	0	0	681	0	681	20,371	10,402	30,773
2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 Year Average 1990-1994	18,999	27,941	2,586	47,525	1,745	793	2,851	7,753	937	8,944	17,420	5,554	23,763	26,918	7,284	35,558	83,083	23,063	106,146
5 Year Average 1995-1999	30,089	30,902	0	60,991	1,796	825	2,958	4,820	5,701	11,162	15,624	3,147	18,338	22,241	9,673	32,458	93,449	15,510	108,959

[a] Sales reported in numbers of fish sold in the round and pounds of unprocessed roe, which may include small amounts of coho salmon roe. Since 1990, efforts were made to separate coho roe from fall chum roe. Does not include department test fish sales.

[b] All fish sold in the round. Includes department test fish sales prior to 1968.

[c] The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold.

[d] In 1974, District 4 was subdivided to include Districts 5 and 6.

[f] Does not include 884 female fall chum salmon sold in Subdistrict 6-C with roe extracted and roe sold separately. Females are accounted for in the estimated harvest to produce roe sold.

Table 4. Coho salmon escapement estimates for selected spawning areas, Yukon River drainage, 1972 to 2000. a

Year	Andreafsky River		Yukon River Mainstem	Kantishna River Drainage		Nenana River Drainage				Delta	Clearwater	Richardson
	East Fork	West Fork	Sonar Estimate b	Geiger Creek c	Barton Creek	Lost Slough	Nenana Mainstem d	Wood Creek	Seventeen Slough	Clearwater River f	Lake and Outlet	Clearwater River
1972										630	417	454 g
1973										3,322	551	375
1974						1,388			27	3,954 h	560	652
1975						943			956	5,100	1,575 j	4 g
1976				25 h		118			281	1,920	1,500 j	60 g
1977				60		524 g		310 c	1,167	4,793	730 j	327
1978						350		300 c	466	4,798	570 j	
1979						227			1,987	8,970	1,015 j	372
1980				3 h		499 g		1,603 c	592	3,948	1,545 j	611
1981	1,657 g					274		849 k n	1,005	8,563 p	459 g	550
1982				81				1,436 k n		8,365 p		
1983				42		766		1,042 k	103	8,019 p	253	88
1984				20 h		2,677		8,826 k		11,061	1,368	428
1985				42 h		1,584		4,470 k	2,081	5,358	750	
1986				5	496	794		1,564 k	218 j	10,857	3,577	146 g
1987				1,175		2,511		2,387 k	3,802	22,300	4,225 j	
1988	1,913	830		159	437	348		2,046 k		21,600	825 j	
1989				155	12 g			412 k	824 g	11,000	1,600 j	483
1990				211		688	1,308		15 g	8,325	2,375 j	
1991				427	467 g	564	447		52	23,900	3,150 j	
1992				77	55 g	372			490	3,963	229 j	500
1993			42,000	138	141	484	419	866 k r	581	10,875	3,525 j	
1994				410	2,000 k	944	1,648	1,317 k t	2,909	62,675 u	3,425 j	5,800
1995	10,901 k		155,000	142	192 k	4,169	2,218	500 k	2,972 g	20,100	3,625 j	
1996	8,037 k			233	0 k	2,040	2,171	2,416 h x	3,668 j	14,075 u	1,125 h	
1997	9,462 k		153,502	274		1,524 z	1,446	1,464 h x	1,996	11,525 u	2,775 j	
1998	5,417 k		176,792	157		1,360 h	2,771 h	370 h aa	1,413 h	11,100 j	2,775 u	
1999	2,963		94,532	29		1,002	745		662	10,975		
2000 y	8,199		183,192	142		55 cc, g	66 cc, g	0 cc dd	879 cc	9,225	1,025	2,175
All Years Average	5,764	830	152,604	182	422	1,048	1,324	1,588	1,214	11,424	1,687	725
Five Year Average 1994-1998	-	-	-	243	-	2,007	2,051	1,213	2,592	23,895	2,745	-
Biological Escapement Goal										>9,000 bb		

- Continued -

Table 4. Coho salmon escapement estimates for selected spawning areas, Yukon River drainage, 1972 to 2000. a

a Only peak counts presented. Survey rating is fair to good, unless otherwise noted. Latest table revision: November 20, 2000.
b passage estimates for coho salmon are incomplete. The sonar project is terminated prior to the end of the coho salmon run.
c Foot survey.
d Mainstem Nenana River between confluence's of Lost Slough and Teklanika River.
f Boat survey counts in the lower 17.5 river miles, unless otherwise indicated.
g Poor survey.
h Aerial survey.
j Boat Survey.
k Weir count.
n Coho weir was operated at the mouth of Clear Creek (Shores Landing).
p Expanded estimate based on partial survey counts and historic distribution of spawners from 1977 to 1980.
r Weir project terminated on October 4, 1993. Weir normally operated until mid to late October.
t Weir project terminated September 27, 1994. Weir normally operated until mid-October.
u Helicopter surveys counted additional salmon outside of the normal mainstem index area in 1994, 1996, and 1997 as follows 17,565, 3,300, and 2,375 coho salmon respectively
x Beginning at confluence of Clear Creek, the survey includes counts of both Glacier and Wood Creeks to their headwaters.
y Preliminary.
z Survey of western floodplain only.
aa Beginning at confluence of Clear Creek, the survey includes counts in Glacier Creek to headwater, only. No survey of Wood Creek due to obstructions in creek. Surveys conducted by TCC.
bb Interim escapement objective established March, 1993, based on boat survey counts of coho salmon in the lower 17.5 river miles during the period October 21 through 27.
cc Surveys conducted by BSFA.
dd Beaver dam blocking stream mouth.

Table 5. Estimated coho salmon subsistence harvest by fishing district and by community of residence, Yukon Area, 1988-1999. a

Community	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	1989-1993 Average	1994-1998 Average
Hooper Bay	1,523 b	211 b			28	0	1	48	92	0	145	68	441 c	57
Scammon Bay	326 b	2 b			31	40	80	104	0	0	204	0	100 c	78
Coastal District Subtotal	1,849	213			59	40	81	152	92	0	349	68	540	135
Sheldon Point	169	487	78	35	441	78	52	419	138	51	229	51	224	178
Alakanuk	634	334	156	391	966	138	94	658	103	882	292	108	397	406
Emmonak	1,578	1,259	1,283	801	666	196	959	485	594	356	696	525	841	618
Kotlik	2,006	2,997	1,784	581	3,353	1,931	2,167	689	1,610	534	954	1,046	2,129	1,191
District 1 Subtotal	4,389	5,077	3,301	1,808	5,426	2,343	3,272	2,251	2,445	1,823	2,171	1,730	3,591	2,392
Mountain Village	1,314	2,385	1,754	868	1,971	447	968	921	276	1,089	954	665	1,485	842
Pitkas Point	1,015	601	52	347	641	349	364	554	691	427	305	302	398	468
St. Marys	2,132	370	463	1,270	2,130	102	614	154	292	329	290	536	867	336
Pilot Station	876	379	1,968	553	300	477	811	241	1,258	323	413	249	735	609
Marshall	1,767	1,304	2,107	259	1,545	320	1,124	272	958	256	335	1,041	1,107	589
District 2 Subtotal	7,104	5,039	6,344	3,297	6,587	1,695	3,881	2,142	3,475	2,424	2,297	2,793	4,592	2,844
Russian Mission	604	20	688	396	1,148	152	55	891	255	10	233	542	481	289
Holy Cross	935	517	338	944	105	88	171	0	0	20	100	62	398	58
Shageluk	128	0	0	0	296	39	137	0	189	736	67	6	67	226
District 3 Subtotal	1,667	537	1,026	1,340	1,549	279	363	891	444	766	400	610	946	573
Lower Yukon River Total	13,160	10,653	10,671	6,445	13,562	4,317	7,516	5,284	6,364	5,013	4,868	5,133	9,130	5,809
Anvik	97	40	236	347	202	115	95	10	44	24	20	282	188	39
Grayling	692	969	10	1,363	859	164	36	97	236	1,055	133	201	673	311
Kaltag	0	792	501	1,260	2,105	334	245	426	298	60	71	333	998	220
Nulato	234	276	845	75	435	37	27	25	149	444	34	170	334	136
Koyukuk	10	110	162	307	1,877	70	305	33	476	345	421	295	505	316
Galena	1,029	415	572	422	1,398	124	803	275	780	1,002	322	123	586	636
Ruby/Kokrines	2,169	1,069	974	410	1,299	308	1,957	607	376	474	1,459	620	812	975
District 4 Yukon River Subtotal (Excluding the Koyukuk River)	4,231	3,671	3,300	4,184	8,175	1,152	3,468	1,473	2,359	3,404	2,460	2,024	4,096	2,633
Huslia	201	150	235	150	233	9	47	307	18	50	128	15	155	110
Hughes	104	91	43	9	21	3	0 d	153	51	250	5	10	33	92
Allakaket	160	118	31	25	0	3	0 d	0	39	50	0	0	35	18
Alatna	18	0	5	83	0	0	0 d	0	0	0	0	0	18	0
Bettles	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Koyukuk River Subtotal	483	359	314	267	254	15	47	461	108	350	133	25	242	220
District 4 Subtotal	4,714	4,030	3,614	4,451	8,429	1,167	3,515	1,934	2,467	3,754	2,593	2,049	4,338	2,853

-Continued-

Table 5. (page 2 of 2)

Community	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	1989-1993 Average	1994-1998 Average
Tanana	16,922	5,518	8,580	4,448	11,406	5,578	2,587	2,154	6,110	3,045	2,572	3,989	7,106	3,294
Rampart	842	87	591	58	75	38	99	0	5	34	20	126	170	32
Fairbanks f g	0	0	5	8	34	0	25	18	42	26	11	0	9	24
Stevens Village	604	208	479	0	20	0	0	1	2	1	63	0	141	13
Beaver	164	774	172	1	398	135	10	20	7	0	0	0	296	7
Fort Yukon h	370	406	727	380	341	5	963	4	157	251 j	39	124	372	283
Circle g	41	1	201	5	54	10	30	0	0	210	0	0	54	48
Central g	0	0	5	0	0	0	0	0	0	0	0	0	1	0
Eagle g	11	0	0	0	3	85	0	1	1	2	132	0	18	27
Other g j	0	165	450	12	0	0	0	7	0	0	2	2	125	2
District 5 Yukon River Subtotal (Excluding Chandalar/Black Rivers)	18,954	7,159	11,210	4,912	12,331	5,849	3,714	2,205	6,324	3,569	2,839	4,241	8,292	3,730
Venetie	0	2	348	12	45	135	4	0	264	7	0	0	108	55
Chalkyitsik	801	26	4	7	0	0	456	0	0	7	0	0	7	93
Chandalar/Black River Subtotal	801	28	352	19	45	135	460	0	264	14	0	0	116	148
District 5 Subtotal	19,755	7,187	11,562	4,931	12,376	5,984	4,174	2,205	6,588	3,583	2,839	4,241	8,408	3,878
Manley g	2,103	5,310	7,574	6,361	4,725	1,535	10,410	7,395	2,462	3,236	2,362	3,244	5,101	5,173
Minto g	2,729	1,179	818	526	614	300	2,616	338	1,223	364	31	0	687	914
Nenana g	25,369	7,593	7,381	10,171	8,695	1,314	9,387	7,142	7,883	5,147	3,519	4,023	7,071	6,616
Fairbanks g k	0	0	66	2,501	2,281	0	2,103	3,076	2,314	1,230	786	868	970	1,902
Other g m		4,759	1,774	2,002	1,039	1,155	1,973	851	1,011	1,618	774	1,259	2,146	1,245
Retained From Commercial							2,900							
District 6 Tanana River Subtotal	30,201	18,841	17,613	21,561	17,554	4,304	29,389	18,802	14,893	11,595	7,472	9,394	15,975	15,850
Upper Yukon Area Total	54,670	30,058	32,789	30,943	38,359	11,455	37,078	22,941	23,948	18,932	12,904	15,684	28,721	22,581
Alaska, Yukon River Total n	67,830	40,711	43,460	37,388	51,921	15,772	44,594	28,225	30,312	23,945	17,772	20,817	37,850	28,390
Alaska, Yukon Area Total	69,679	40,924	43,460	37,388	51,980	15,812	44,675	28,377	30,404	23,945	18,121	20,885	38,391	28,524

a Historic estimated subsistence harvests are available in each year's respective Yukon Area Annual Management Report (1961 to 1998). Beginning in 1988 subsistence salmon harvest estimates have been generated from a stratified random sample of village households. Estimates include test fish catches given away. Blanks indicate harvest information was not collected.
b The village was not surveyed, harvest estimates were calculated from calendar and post card replies.
c Average harvest includes 1988, 1989, 1992 and 1993.
d Due to floods in 1994, Hughes, Allakaket, and Alatna were not surveyed and the estimated harvest of coho salmon was zero.
f Harvests by Fairbanks subsistence permit holders who fished in District 5 near the Yukon River bridge crossing.
g In 1988 and 1989, permit and household interview data were expanded for permits not returned. Beginning in 1990, reported harvest is from returned permits only.
h Includes Birch Creek except in 1988, 1990 and 1991. A harvest of three coho salmon was estimated in 1997.
j Other permit holders who fished in District 5 but did not reside in the villages listed.
k Harvests by Fairbanks subsistence permit holders who fished in the Tanana River.
m Other permits holders who fished in District 6 but did not reside in the villages listed.
n Does not include the Coastal District.

Table 6. Commercial coho salmon sales and estimated harvest by area and district, Yukon River drainage in Alaska, 1961-2000.

Year	Lower Yukon Area [b]				Upper Yukon Area [a]												Total Estimated Harvest
					District 4			District 5			District 6			Subtotal			
	District 1	District 2	District 3	Subtotal	Number	Roe	Estimated Harvest [c]	Number	Roe	Estimated Harvest [c]	Number	Roe	Estimated Harvest [c]	Number	Roe	Estimated Harvest [c]	
1961	2,855	-	-	2,855	-	-	-	-	-	-	-	-	-	-	-	-	2,855
1962	22,926	-	-	22,926	-	-	-	-	-	-	-	-	-	-	-	-	22,926
1963	5,572	-	-	5,572	-	-	-	-	-	-	-	-	-	-	-	-	5,572
1964	2,446	-	-	2,446	-	-	-	-	-	-	-	-	-	-	-	-	2,446
1965	350	-	-	350	-	-	-	-	-	-	-	-	-	-	-	-	350
1966	19,254	-	-	19,254	-	-	-	-	-	-	-	-	-	-	-	-	19,254
1967	9,925	-	1,122	11,047	-	-	-	-	-	-	-	-	-	-	-	-	11,047
1968	13,153	-	150	13,303	-	-	-	-	-	-	-	-	-	-	-	-	13,303
1969	13,989	-	1,009	14,998	-	-	-	-	-	-	-	-	-	-	-	95	15,093
1970	12,632	-	-	12,632	-	-	-	-	-	-	-	-	-	-	-	556	13,188
1971	12,165	-	-	12,165	-	-	-	-	-	-	-	-	-	-	-	38	12,203
1972	21,705	506	-	22,211	-	-	-	-	-	-	-	-	-	-	-	22	22,233
1973	34,860	1,781	-	36,641	-	-	-	-	-	-	-	-	-	-	-	0	36,641
1974 [d]	13,713	176	-	13,889	0	-	0	1,409	-	1,409	1,479	-	1,479	2,888	-	2,888	16,777
1975	2,288	200	-	2,488	0	-	0	5	-	5	53	-	53	58	-	58	2,546
1976	4,064	17	-	4,081	0	-	0	0	-	0	1,103	-	1,103	1,103	-	1,103	5,184
1977	31,720	5,319	538	37,577	0	-	0	2	-	2	1,284	-	1,284	1,286	-	1,286	38,863
1978	16,460	5,835	758	23,053	32	-	32	1	-	1	3,066	-	3,066	3,099	-	3,099	26,152
1979	11,369	2,850	-	14,219	155	-	155	0	-	0	2,791	-	2,791	2,946	-	2,946	17,165
1980	4,629	2,660	-	7,489	30	-	30	0	-	0	1,226	-	1,226	1,256	-	1,256	8,745
1981	13,129	7,848	419	21,396	0	-	0	0	-	0	2,284	-	2,284	2,284	-	2,284	23,680
1982	15,115	14,179	87	29,381	15	-	15	0	-	0	7,780	-	7,780	7,795	-	7,795	37,176
1983	4,595	2,557	-	7,152	0	-	0	0	-	0	6,168	-	6,168	6,168	-	6,168	13,320
1984	29,472	43,064	621	73,157	1,095	-	1,095	0	-	0	7,688	-	7,688	8,783	-	8,783	81,940
1985	27,676	17,125	171	44,972	938	-	938	0	-	0	11,762	-	11,762	12,700	-	12,700	57,672
1986	24,824	21,197	793	46,814	0	-	0	0	-	0	441	-	441	441	-	441	47,255
1987	0	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0
1988	36,028	34,758	1,419	72,205	2	-	2	8	-	8	13,972	-	13,972	13,982	-	13,982	86,187
1989	22,987	38,402	3,988	65,377	3	-	3	64	-	64	16,084	-	16,084	16,171	-	16,171	81,548
1990	12,160	16,405	918	29,483	0	-	0	0	-	0	11,549 [f]	4,042	14,804	11,549	4,042	14,804	44,287
1991	54,095	40,898	1,905	96,898	14	0	14	0	0	0	6,268	4,299	9,774	6,282	4,299	9,788	106,686
1992	0	0	0	0	0	0	0	0	0	0	6,556	1,660	7,979	6,556	1,660	7,979	7,979
1993	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0	0	120	5,588	4,451	120	5,588	4,451	4,451
1995	21,625	18,488	0	40,113	0	0	0	0	0	0	5,826	2,229	6,900	5,826	2,229	6,900	47,013
1996	27,705	20,974	0	48,679	161	0	161	0	0	0	3,803	4,829	7,142	3,964	4,829	7,303	55,982
1997	21,460	13,056	0	34,506	814	0	814	0	0	0	0	0	0	814	0	814	35,320
1998	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
1999	855	746	0	1,601	0	0	0	0	0	0	0	0	0	0	0	0	1,601
2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 Year Average 1990-1994	13,251	11,461	565	25,276	3	-	3	-	-	-	4,899	3,122	7,402	4,901	3,122	7,404	32,681
5 Year Average 1995-1999	14,327	10,653	0	24,980	195	0	195	0	0	0	1,926	1,412	2,808	2,121	1,412	3,003	27,983

a Sales reported in numbers of fish sold in the round and pounds of roe. Since 1990, efforts were made to seperate coho and fall chum salmon roe. Does not include department test fish sales.

b All sales are fish in the round. Includes department test fish sales prior to 1988.

c The estimated harvest is the fish sold in the round plus the estimated number of females caught to produce the roe sold.

d In 1974, District 4 was subdivided to include Districts 5 and 6.

f Does not include 438 female coho salmon sold in District 6-C with roe extracted and roe sold separately. These fish are included in estimated harvest to produce roe sold.